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An index to the eighty-seventh volume of THE RAILWAY GAZETTE *covering the issues from July 4 to December 26, 1947, has been prepared, and is now available free of charge on application to the publisher.*

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THE RAILWAY GAZETTE
33, TOTHILL STREET, WESTMINSTER, S.W.1.

Anglo-Argentine Trade Agreement

LAST week-end it was announced that the British and Argentine delegations which have been negotiating the trade agreement, had reached accord, and that the resulting agreement now would be drafted for reference to the respective Governments; also, that it was hoped to initial it on February 12. The agreement means that the stockholders of the British-owned railways may expect early payment in cash of £150 million, the agreed purchase price for the assets of their undertakings. It is now expected that the payment will be made to all classes of stockholders simultaneously. The purchase by the Argentine Government of the railways will not involve, as was originally intended, the use of the whole of Argentina's sterling balances in London. The major part will be met by an advance by the British Government against meat shipments from Argentina. It is understood that the United Kingdom has agreed to an increase of some 14 per cent. of the price to be paid for Argentine meat. This increase is less than was asked at first, and on which the fate of the agreement depended for some time. The United Kingdom is believed to have been promised an open market for a wide range of manufactures, which should help to increase British exports to Argentina.

* * * *

Wages, Costs, and Prices

On February 4 the Government issued a White Paper, "Statement on Personal Incomes, Costs, and Prices" (Cmd. 7321, H.M. Stationery Office, 1d.), in which it outlined its policy on wage increases. It is the frankest statement of the position which the Government has yet made, and it marks a decisive stage. With the background enunciated in the White Paper there can be no dispute; indeed, the dangers inherent in the present position have long been stressed outside Government circles. In its endeavour to put an end to the upward spiral of wage claims and consequent higher prices, it is likely to meet with conflict in the less responsible sections of the trade union movement. Some, indeed, have already made known their determination to proceed with wages claims in spite of the Government warning. For the first time in a Government announcement of this kind there is a threat, in that if remuneration is increased, there can be no presumption that the resulting costs will be taken into account in settling controlled prices, charges, or margins requiring Government action. That in some cases may be an effective deterrent, but rather better and certainly more vivid arguments than those advanced by the Prime Minister in his broadcast explaining the White Paper will be needed to bring home to the mass of the workers the necessity for acquiescence in the intention to stabilise wages and prices.

* * * *

Industrial Expansion in Mozambique

A loan granted by the Portuguese Government to the East African Colony of Mozambique for industrial development is likely to bring increased traffic to the Trans-Zambesia Railway, connecting Beira with the Zambesi River at Sena. The Chairman of the company, Mr. Vivian L. Oury, said at the company's recent annual meeting that there were prospects of a large expansion of coal output from the colliery at Tete, which might be expected to pass over their line to Beira when the Tete Railway was completed. This extended already for a distance of 122 km. from a junction with the Central Africa Railway at Dona Ana (on the Zambesi), and was expected to be opened throughout in 1949. Important factory projects seemed likely to be realised in the near future on the company's own line at Donda and at Manga. Mr. Oury reported progress with stone-ballasting, which is to be carried out over the whole line, and the acquisition of six new 4-6-2 locomotives, while orders for additional rolling stock are further measures that will assist the railway in meeting the demands likely to be made on it in the future. In 1946 the company carried 191,122 tons of goods, an increase of 14,654 tons.

* * * *

From Beira to Lake Nyasa

The chain of communication from Beira to Lake Nyasa consists of the Trans-Zambesia Railway to Sena, on the Zambesi; the Central Africa Railway to Port Herald, crossing the Zambesi by the Lower Zambesi Bridge, 12,064 ft. in length;

and the Nyasaland Railways from Port Herald to Chipoka (on Lake Nyasa) and Salima. All are of 3 ft. 6 in. gauge, and were shown on a map in our issue of September 10, 1943. Progress with strengthening the line of the Nyasaland Railways and acquiring new motive power were mentioned by the Chairman of the company, Mr. W. M. Codrington, at the recent annual meeting. By next June the programme of reinforcing all bridges to carry a 13½-ton axle load will have been completed, and a contract has been placed with the Cleveland Bridge & Engineering Co. Ltd. for a new bridge to replace those at Chiromo and Pokera which were damaged by floods early in 1946. This will entail a deviation between miles 25 and 29, the embankments for which have been completed. Mr. Codrington recalled that the company has orders with the North British Locomotive Co. Ltd. for five 2-8-2 locomotives, and with Hurst, Nelson & Co. Ltd. for six 7,000-gal. tank wagons. The company's rolling stock is pooled with the Trans-Zambesia Railway, which has a total of 50 wagons on order from the Gregg Car Company.

* * * *

Australian Commonwealth Railways

Operation of the four lines comprised in the Commonwealth Railways system for the year ended June 30, 1947, resulted in a loss of £124,779, compared with a working profit of £63,214 in 1946. The report for 1946-47, which we have received from the Commonwealth Railways Commissioner, Mr. G. A. Gahan, draws attention to the large decrease in the conveyance of military traffic. Even so, when comparison is made with the year ended June 30, 1939, the results attained last year show a considerable expansion, the earnings of £1,099,553 comparing with £546,487 in the pre-war year. The working expenses for 1946-47 of £1,224,332, however, have to be set against £641,749 in 1939, when a train-mileage of 901,916 miles was run, as against 1,513,063 miles in the year covered by the report. There was an increase in through civilian traffic on the Trans-Australian Railway and the Central Australia Railway, the Trans-Australian figures representing a rise of 45 per cent. compared with the year ended June 30, 1939, and being 10,498 above the figure for 1945-46. On the Central Australia Railway the number of through passengers increased from 4,530 to 5,205. Shortage of coastal shipping contributed to higher goods traffic between the East and West of Australia, the total tonnage of goods and livestock conveyed by the four systems being 342,495, an increase of 66,195 tons.

* * * *

Cape Town Foreshore Plan

Nearly three centuries have passed since the first settlement was established on the shores of Table Bay. The purpose of this settlement was a single one, simply to provide a watering place for ships, but with the development of the natural resources of the country, the city which rose on this site has long since outgrown the narrow confines of the Atlantic on one side and Table Mountain on the other. Some years ago, however, new docks were built in Table Bay, during which 500 acres of land were reclaimed from the sea, and this provided a welcome windfall for Cape Town and an opportunity to replan the centre of the city. In 1945, Mr. F. C. Sturrock, Minister of Transport, formed a committee to work out an agreed plan, and the new project, which will take 50 years to complete, recently has been approved. One of the keynotes of the plan, which is described in a brochure reviewed this week, centres on the railway area, and plans have been prepared for a new railway station and a railway hotel, sited in the heart of the city, while work already has begun on the provision of goods yards in the reclaimed area. A model of the plan has been forwarded to London, and will be on view to the public at South Africa House, Trafalgar Square, until February 21.

* * * *

Future of German Line in Swiss Territory

Since the collapse of Germany in 1945, the 15-mile section of the Reichsbahn line from Singen to Basle which traverses Swiss territory in the neighbourhood of Schaffhausen has been under the administration of the Swiss Federal Railways, although still staffed by Reichsbahn personnel. Negotiations have been in progress for some time for its transfer to the French authorities occupying Southern Germany, and a draft agreement is reported to have been reached for this purpose. The operation of the portion of the line in Switzerland by the Reichsbahn dates back to arrangements concluded in 1852 and 1858, and renewed in later years. At Schaffhausen the platform serving the line is fenced off from the rest of the station, being considered German territory from the point of view of the railway and Customs services. Fares and rates, although nominally in German currency, have to be paid at present in Swiss money. While many criticise the present situation as anomalous, there is local opposition to the transfer of the line among residents in the Schaffhausen district who are accustomed to use its services.

* * * *

Modernised Booking Offices

Research into the design and modernisation of booking offices to raise their standards to the level associated with modern commodity-selling organisations, for some time had been carried out by the L.N.E.R. As a result, when work was resumed on the Liverpool Street and Fenchurch Street to Shenfield electrification, the opportunity was taken to include a number of features arising out of this research, in the new booking offices at Stratford and Maryland. These two booking offices have been designed on the principle that ticket offices are, in fact, shops where transport can be bought, and everything possible has been done to make them attractive to the public. The internal layout is especially spacious at Stratford, and here, as well as at Maryland, full consideration has been given to facilitating the staff in carrying out their duties. The provision of equipment falls into three scopes, namely, that relating to the principal fast booking traffic, that to stations in less frequent demand, and lastly to that where lengthy transactions are carried out. These booking offices are a considerable step towards the achievement of an ideal layout, though it must be pointed out that their planning still is regarded as experimental, and thus, research will be continued to effect further improvements in future construction. We hope to publish some further details and illustrations of the new arrangements in a future issue.

* * * *

Linking Brussels Main-Line Termini

Journeys between terminal stations by surface or underground transport are an inconvenient but often unavoidable feature of railway travel. Since the war considerable progress has been made on the ambitious and long-standing plan for building a line between the Nord and Midi stations in Brussels, that will enable main-line trains to run between the two termini, and permit through operation between the principal routes radiating from Brussels to serve the North and South of Belgium and neighbouring countries. Elsewhere in this issue we publish an account of the development of this project since it was first undertaken in 1901, and of the present condition of the extensive works required by this junction line, which will be partly in tunnel and partly on viaduct. There will be six tracks throughout, all of them electrified. Plans for extensive electrification of Belgian main lines are in hand, but until they are completed the long-distance trains of steam stock will be hauled over the junction line by electric locomotives. In addition to its importance for international traffic, the junction railway will have a valuable function in the improvement of Brussels local services, for there will be three intermediate stations on the line.

* * * *

Education Scheme for Gold Coast Railway Staff

Representations of Gold Coast public service workers, including post office and public works as well as railway employees, resulted in the establishment in 1947 of a committee presided over by Mr. A. J. Loveridge (Acting Chief Commissioner) to consider their claims. One of the most important recommendations approved by the Governor (set forth in a published correspondence with the unions concerned) is that more opportunity should be given to Africans to acquire the experience necessary for promotion to higher grades of service on the railway. To this end it is recommended that suitable African candidates should be enabled to obtain experience on larger railway systems outside the Gold Coast, and six members of the staff are being sent to this country in implementation of this clause. Other conditions of employment dealt with in the

report are payment of overtime; length of overtime to be worked; free transport for leave and holidays with pay; occupational diseases; discipline; and ways and increments for the various grades. Retirement of non-pensionable staff at 45 at the option of employer or worker was recommended. A pension, as opposed to a gratuity after ten years, which the unions asked for, was not granted. It is pointed out in conclusion that union members already had been granted unprecedented improvements in conditions of service of all ranks during 1947.

* * * *

The South Croydon Accident, Southern Railway

The cause of the collision near South Croydon on October 24, 1947—the worst for casualties ever to occur on any part of the Southern Railway system, the previous worst being the Salisbury accident in 1906, when 28 lives were lost—was made known immediately afterwards. The signalman at Purley Oaks admitted forgetting a train standing at the starting signal, obscured by fog, and hastily using the releasing key of the Sykes block. This enabled him irregularly to accept the following train and clear his home signal for it. Sir Alan Mount's report, summarised in this issue, gives the remaining facts of the accident and shows how the man's original delusion was followed by other blunders, certain circumstances, which might have been expected to recall the situation to his mind, failing to do so. In fact, the forgotten train, which was overtaken after starting on the signal which he thought himself to be clearing for the following one, did not return to his recollection until he was told of the collision. As we commented at the time at some length on the releasing key problem, we need refer no further to it now, nor, in view of the coming replacement of the Sykes apparatus on this section by more modern equipment, to any features of the layout which possibly may have confirmed the man in his initial misapprehension. In any case, he acted most irresponsibly, in the face of very stringent warnings covering the use of the key, issued in 1946 to reinforce those in the block regulations.

* * * *

High Viaduct on 250-ft. Radius Curve

NOT the least of the problems confronting the engineer who is surveying or constructing a narrow-gauge line in mountainous country is to decide what is the best way to carry it over a deep ravine on a sharp curve where a fill and culvert are impracticable. For this reason interest attaches to the description—in a recent issue of our American contemporary, *Engineering News-Record*—of a steel-towered cantilever viaduct 493 ft. long entirely on a uniform 250-ft. rad. curve and spanning a stream in a gorge 100 ft. deep, despite the fact that this is a road bridge. It is remarkable that in the length of the viaduct the road turns through an angle of some 110 deg., or considerably more than a right angle. As the viaduct is designed to carry a two-lane concrete roadway, 25 ft. wide between curbs, and for heavy traffic loading, its strength and stability approximate to those required for a narrow-gauge railway.

To reduce to a minimum the number of superstructure supports on such precipitous ground, even on so sharp a curve, there are only two steel trestle towers and one concrete bent pier. However, these three piers carry six spans, a double cantilever truss span over each tower, a span suspended between them, two spans each having one end suspended from one of the outer cantilevers and the other end resting (*a*) on an abutment and (*b*) on the concrete pier, and, finally, an approach span from the other abutment to that pier. Perhaps the most interesting feature of these spans—of the deck Warren type with verticals—is that they are built up in panels which are 15 ft. long in the truss on the outer side of the curve, and 14 ft. long in the inner truss, so as to provide the necessary angularity between one span and the next, governed by the curvature of the roadway. Four of the spans have six panels and two have five. The decking consists of 6½-in. thick reinforced concrete, and the roadway is banked to the extent of ¾ in. to a foot of width. With the span trusses brought nearer together, this type of viaduct would seem very suitable for a railway of, say, 2 ft. 6 in. gauge in really difficult country.

British Transport Traffics

ON February 4 the British Transport Commission issued its first return of traffic receipts. This covers the four weeks to January 25, and includes not only the gross revenues of British Railways, but also those of the inland waterways. Moreover, the receipts of London Transport undertakings are given separately—when the issue of traffic receipts was resumed after the war the return included the L.P.T.B. figures—and it divides these into three categories; revenue from railways, buses and coaches, trolleybuses, and trams.

The receipts from railway working in respect of British Railways are also given in rather more detailed form than was the practice previously, for passenger receipts no longer include parcels by passenger train, which are given separately, and a distinction is drawn between merchandise and live stock, and minerals and merchandise (classes 1-6), and revenue from the movement of coal and coke is segregated.

As will be seen from the table below, in every case except freight charges on inland waterways, there is a substantial increase as compared with the corresponding four weeks of 1947, but it must be borne in mind that the comparison between the two years is affected by increases in fares, rates, and charges which were introduced at different dates during 1947 to meet increases in operating costs.

TRAFFIC RECEIPTS FOR FOUR WEEKS ENDED JANUARY 25

	1948 £000s	1947 Corresponding period £000s	Incr. or decr.
British railways (receipts from railway working)—			
Passengers	7,599	7,092	+507
Parcels, etc., by passenger train	2,022	1,719	+303
Merchandise (other than Classes 1-6) and live-stock	6,700	5,686	+1,014
Minerals and merchandise (Classes 1-6)	2,125	1,715	+410
Coal and coke	5,163	3,982	+1,181
	23,609	20,194	+3,415
London Transport—			
Railways	1,129	960	+169
Buses and coaches	2,281	1,841	+440
Trolleybuses and trams	835	692	+143
	4,245	3,493	+752
Inland Waterways—			
Tolls, etc.	66	58	+8
Freight charges	23	26	−3
	89	84	+5
Total	27,943	23,771	+3,172

The slight increase in the amount of information made available by the British Transport Commission is a step in the right direction. If, later, it is extended to cover publication of receipts from road transport undertakings, the development will be welcome as tending to provide a better overall picture of the nation's transport working than hitherto has been forthcoming. Another suggestion for improvement which was made in the City Notes of *The Times* when reviewing the first return of receipts, merits the consideration of the Commission. This was that the opportunity might be taken of incorporating in the return figures of working expenses and net revenue, as is done in the case of various overseas railway systems.

* * * *

The Railways of Scotland

THE year 1948 is noteworthy for the railways of Scotland, not only because it marks their nationalisation (in common with those of the remainder of Great Britain) and also their unification for the first time as one organisation, but also because it is the centenary of the completion of the first through railway between London and Edinburgh and Glasgow, and of many other lines in Scotland forming the main backbone of the Caledonian Railway trunk line network. The completion to the Scottish capital and to Glasgow was opened on February 15, 1848. An interesting 4-ft. 6-in. gauge group of mineral railways was used to approach Glasgow and for extension further north. The remaining section of the original Caledonian was from Garnqueen (reached by running powers over 52 chains of the ancient Monkland & Kirkintilloch Railway) to Greenhill, which was opened on August 7, 1848. All the railways which formed ultimately the Caledonian main line to Aberdeen were authorised by Acts of July 31, 1845, but originally various

separate companies were responsible to individual sections. From Greenhill to Perth was the Scottish Central Railway, opened from Greenhill to Stirling on March 1, and thence to Perth on May 23, 1848. The Scottish Midland Junction ran thence to Forfar, and was opened on August 2, 1848. Meanwhile, the Aberdeen Railway, which had leased the old Arbroath & Forfar (originally of 5-ft. 6-in. gauge), had carried the route forward to Montrose on February 1, 1848, and thus it became possible to travel 500 miles north by rail from London during that year.

It is particularly appropriate that the first issue in 1948 of *Scotland's S.M.T. Magazine* should have been devoted to Scottish railways, partly from the historical viewpoint, and also giving an excellent general picture of the national heritage. The two main articles are "Forerunners of the L.M.S." by Mr. Norman Doran Macdonald, and "Pioneer Railways of the L.N.E.R." by Mr. Andrew R. O'Dell. These are designed to outline the story of the development of the Scottish railways from the primitive wagonways that served the collieries to the complex railway systems which were grouped in 1923, the L.M.S.R. based primarily on the old Caledonian Railway, and the L.N.E.R. on the North British Railway. The illustrations are admirable and well-chosen, and it is likely that many railway enthusiasts who have been successful in securing a copy (now, we understand, out of print) will retain it for its pictorial value. Much of the text, while giving a pleasant survey of general trends, is not designed for permanent reference. Mr. Macdonald, for example, has written in racy reminiscent style, but obviously without access to his works of reference. The story of Scotland's railway bridges is told adequately from the popular viewpoint by Mr. Lewis Spence, and here again the illustrations are far from common. "Traffic Control" by Mr. A. N. Ford, is a successful effort to convey in popular language the essence of a somewhat complex railway traffic technicality.

* * * *

Great Northern Railway Company (Ireland)

ALTHOUGH there was an increase of £7,626 in gross railway receipts for the year ended December 31 last, the company's report records a disproportionate rise of £88,472 in expenditure. As a result, the total net income for the year of £265,121 from the railway, hotels, road transport, and miscellaneous sources, represented a decrease of £77,564. To the net income is added a balance of £40,535 brought in from the accounts of the previous year, and the sum of £50,000 transferred from the reserve for contingent liabilities. The latter figure consisted of provisions made in the past for contingent liabilities under the Road & Rail Transport Act (Northern Ireland), 1935, which are not now required. From the total of £355,656, there must be deducted £162,988 for fixed charges, including interest on the debenture stock, leaving a balance of £192,668 available for dividends. The directors recommend payment of the following dividends on March 15 (all less income tax): £4 per cent. on the consolidated 4 per cent. guaranteed stock; £4 per cent. on the consolidated 4 per cent. preference stock; and £1 per cent. on the ordinary stock. These dividends will absorb £155,245, leaving £37,423 to be carried forward. Some results for the year are tabulated below:—

	1946	1947
No. of passengers (including seasons)	8,646,162	8,184,350
Passenger receipts	£1,307,988	£1,267,876
Goods tonnage	1,598,424	1,525,126
	£	£
Goods receipts	1,094,486	1,132,262
Railway gross receipts	2,844,342	2,851,968
Road transport (ditto)	277,372	338,424
Hotels, etc. (ditto)	206,534	221,451
Total gross receipts	3,328,248	3,411,843
Expenditure	3,062,397	3,219,991
Net receipts	265,851	191,852

Total receipts from railway passengers, at £1,267,876, compared with £1,307,988 in the previous year. Mails showed a slight increase from £38,775 to £38,791, and there was a gain of £19,096 in parcels post and excess luggage traffic. Receipts from other merchandise by passenger train, however, fell from £59,886 to £57,457, and expenses of collection and delivery increased from £7,716 to £8,596. As a result, the total passenger train receipts declined from £1,508,112 to £1,483,803.

Receipts from merchandise traffic by goods train rose from £1,024,747 to £1,077,969, but there was an increase of £12,084 in expenses of collection and delivery. Other categories of goods train traffic showed smaller receipts except for coal, coke, and patent fuel, which at £83,465 compared with £80,757 in the previous year. Total traffic receipts at £2,760,501 were £10,289 higher.

On the expenses side, railway working took £2,777,901, as against £2,689,429 in the preceding year, leaving railway net receipts of £74,067, a decrease of £80,846. In the road transport undertaking, gross receipts showed an increase from £277,372 to £338,424, but expenditure rose by £52,508, leaving net receipts £8,544 higher at £95,439. The net receipts from hotels, refreshment rooms, and restaurant cars fell from £24,043 to £22,346.

The mileage of line open for traffic remained at 598 miles 28 ch. as in the preceding year, and there was no change in the steam locomotive stock, which stood at 40 locomotives and 150 tenders. The total number of coaching vehicles operated fell from 520 to 507, and the number of merchandise and mineral vehicles from 5,691 to 5,687.

* * * *

Kenya & Uganda Railways & Harbours

SUFFICIENT time has elapsed since the end of the war to justify a dispassionate review of the present financial circumstances of the Kenya & Uganda Railways & Harbours, compared with the position at the end of 1939. The various measures of work performed cannot be dissociated from such a review—indeed, they are an essential feature. The following table gives the main statistical data relative to the years 1939 and 1946:—

	1939	1946
Track-mileage	1,828·6	1,868·4
Train-mileage, coaching	520,939	540,901
,, goods	2,713,959	3,803,488
Engine-mileage	4,071,238	5,514,588
No. of locomotives	145	160
Passenger journeys	1,019,048	3,005,181
No. of coaching vehicles	448	457
Coaching receipts	£245,499	£797,957
Tonnage of goods hauled	1,747,278	2,564,053
Net ton-mileage of goods	505,571,783	665,278,606
No. of goods vehicles	3,863	4,279
Goods receipts	£2,098,525	£3,357,906
Railways—Gross receipts	£2,424,013	£4,346,868
,, Working expenditure	£1,703,713	£3,190,927
,, Capital charges	£645,442	£615,717
,, Percentage of working expenditure to gross receipts	70·29	73·41
Harbours—Tonnage: Imports	583,121	816,348
,, ,, Exports	609,906	728,619
,, Gross receipts	£453,367	£766,172
,, Working expenditure	£222,533	£437,444
,, Capital charges	£222,464	£204,791
,, Percentage of working expenditure to gross receipts	49·08	57·09
Total staff and labour employed	24,200	26,142
Europeans	552	593
Asians	2,309	2,847
Africans (other than labourers)	3,344	4,503
,, labourers	17,995	18,199

In considering the receipts figures of the table, it is important to note that no major changes were made in either the railways or harbours rating structures and levels between the years 1939 and 1946—an exception to the position which has arisen in other organisations during the same period. During this period, very substantial relief was granted in respect of Forces traffic and cargo, either in the form of rebates, or by the application of special rates. The very material increase in working expenditure during the period has been more than compensated for by the increase in gross receipts arising from increased work done. It must be stated that, while the year 1939 was not affected to any great extent by the war, the year 1946 was one during which traffic movements due to demobilisation, and so on, were heavy.

The administration is alive to the fact that if increases in rates and fares are to be avoided, steps must be taken to adopt measures which will take care of the very substantial increase in working costs, particularly as revenue may not remain as buoyant as it is at present. With this in view, a progressive policy of loan redemption and conversion is being followed, and advantage taken of the current level of interest rates. It is fortunate that over £12,000,000 of the total loan capital of £14,139,229 have either become redeemable, or may be redeemed by the year 1950. Of this amount, £4,245,386 has been disposed of, partly by redemption and by conversion to a 2¾ per cent. loan of £1,820,000. A further sum of £5,000,000 was due for disposal in early January, 1948, also partly by redemption and conversion of £3,710,000 to a 2½ per cent.. loan. The net reduc-

tion in annual capital charges anticipated by these two operations is some £344,000, after allowing for a contribution to supplementary sinking fund of 1 per cent. on the conversion loans, in addition to the normal 1 per cent. sinking fund.

At the end of 1946 the capital of the administration comprised:—

	£
Parliamentary grants (interest free)	5,572,592
Contributions from revenue and miscellaneous capital receipts...	7,979,334
Total, non-interest-bearing	£13,551,926
Loan capital (interest rates from 2¾ per cent. to 5 per cent.) ...	11,713,843
Expenditure from current resources, pending the raising of loan capital	232,623
Total	£25,498,392

A further beneficial financial operation which has been carried out is the conversion of the renewals funds from the "straight line" basis to the accumulative sinking fund basis, provision having been made also to overtake arrears of contributions due to:—

(*a*) Short contributions in earlier years; and

(*b*) an adopted increase of 25 per cent. in assessed replacement costs.

Fuel for locomotives, pumps, and so on, has long been the subject of investigation, and a decision was taken in 1946 to adopt fuel oil as the standard in place of coal and wood to the maximum possible extent. Conversion of locomotives is expected to begin towards the end of the current year, and when the scheme is in full operation, net annual savings in working expenditure of some £300,000 are expected.

The search for means by which other savings in working expenditure may be achieved continues, and it is probable that the way will be clear later on for some reduction in the maintenance and repair costs of rolling stock and other assets.

In so far as the harbours section of the organisation is concerned, substantial reductions in the tug, lighter, and motor boat fleet have been made already, with consequent reduction in operating and maintenance costs. The present spasmodic nature of shipping movements is the cause of congestion and militates against the economic disposal of cargo. Some idea of the position can be gathered from the following figures:—

PORT OF MOMBASA

Month	No. of ships over 400 N.R.T. entering port	Total import general cargo handled B/L tons	Total export general cargo handled B/L tons
1947			
January	42	46,548	36,731
February	30	21,887	29,439
March	50	31,592	74,696
April	33	33,210	39,028
May	45	43,729	78,298
June	38	31,098	55,924

Considering the financial stability of the Kenya & Uganda Railways & Harbours the following figures indicate the position in respect of provision for accrued and future liabilities, at the end of the years 1939 and 1946:—

	1939	1946
	£	£
Capital account balances	672,264	502,306
Betterment funds balances:		
Railways	462,408	1,300,843
Harbours	97,372	182,720
Renewals funds balances:		
Railways	1,973,867	4,297,834
Harbours	261,255	395,928
General reserve	155,045	575,000
Rates stabilisation & relief fund	200,000	827,245
Reserves for pensions, superannuation, etc. ...	182,387	800,478
Sinking fund provisions:		
Normal	1,967,171	2,014,446
Supplementary	521,954	27,086
Unappropriated surplus carried forward to following year	119,325	337,244

The reduction in the Sinking Fund provisions is explained by the loan redemption and conversion to which reference has been made already, and of itself is a healthy indication. The progress achieved in the 7-year period is of no mean order, but there is still some lag to be overtaken in respect of the rates stabilisation & relief fund and general reserve. Provision has also to be made for the very substantial increase in the cost of capital and betterment works.

The figures tabulated earlier in this article show that the very substantial increase in work and operations, and the improvement in the financial position of the organisation, have been achieved with a total increase in staff and labour of under 2,000, more than half of which arises in respect of African employees—a significant indication of the steps taken to extend the employment of the indigenous peoples. If, as has been said on more than one occasion, the economic progress of a country may be judged by the progress of its transport system, then the territories served by the Kenya & Uganda Railways & Harbours are indeed in a sound condition.

Holiday Traffic, 1948, and After

(*From a Correspondent*)

THE coming summer certainly will bring a repetition of the congestion and discomfort which have been so marked in holiday traffic since the war. Various factors have brought about a great increase in the numbers travelling at holiday times, whilst the train services, restricted by shortage of locomotives, coaches, and so on, have been crowded into a portion of the 24 hr. by the withdrawal of long-distance excursion train services which formerly ran mostly during the night.

One remedy, therefore, seems to be to restore the night trains, and to encourage the public to use them by cheaper fares or other concessions; such trains might have to be restricted to week-ends, but it would be worth while trying the effect of mid-week trains during the night. There must be a considerable number of people who could travel mid-week, and if only 10 per cent. could be induced to do so, that would afford some relief at the peak periods, whilst the mid-week traffic certainly would increase when the public realised its advantages.

To encourage the public to take advantage of the month of June, or even May, which, in many ways, are preferable to the more popular months, definite concessions in fares, hotel charges, and other costs are essential. Vague promises are useless, but a clear-cut saving of 10, 15, or 20 per cent. certainly would bring a material result.

If an analysis of the crowds at any of the London terminal stations on or about a Saturday in or near the month of August could be made, it would be found that a very large majority of the passengers had made their way to the station from suburbs on the same line of railway, or from other terminal stations, or other parts of London. If they could travel direct to some convenient outlying station to join the trains, congestion of incoming services and of the station itself would be avoided. For example, on the former Great Western system, trains started from Ealing as reliefs to some of the regular services would cater for the substantial population in and about Ealing, as well as many persons who would gladly travel to that place by local services and save themselves much time and trouble by so doing. Advance bookings would be desirable, if not essential, and adequate, effective, advertising would be necessary to make the arrangements known to the public in the early stages of an experiment.

Other places from which direct services to holiday resorts might be arranged to relieve the terminal stations and minimise inconvenience to passengers are Kensington (Addison Road), Clapham Junction, Finsbury Park, Willesden, or other main-line stations, with suitable platform accommodation, which are adjacent to terminal or intermediate stations on the Underground system.

Another large section of the crowd at any London terminus would consist of passengers who had reached the Metropolis from another railway system and had had to face the difficult journey across London during a peak period, by the Underground, bus, or taxi. Might not something be done to short-circuit such traffic and work it direct to the railway system where the destination lies, either by through trains to or near the ultimate destination, or by local trains to a suitable outlying starting point as suggested above? Similar arrangements might be made at many large provincial stations and junctions.

In the meantime, the railway authorities, instead of devoting their efforts to the control of vast crowds by means of queues, mounted police, and similar measures, should concentrate on the diversion of some of the passengers to places where they can be dealt with at much less inconvenience to themselves, and with more ease and economy by the railway staff.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Timetable Revision

"Mavis Croft," Walpole Avenue,
Chipstead, Surrey. February 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I find it hard to agree to your suggestion, since endorsed by one of your correspondents in the January 23 issue, that in standardising main-line timetables, British Railways might curtail some of their through coach facilities.

The Railway Executive, which has to consider the goodwill of its customers besides operating efficiency, might well be spared such thoughts. Through travel to the remoter parts of the country is appreciated highly by all sections of the public and is a vital factor in retaining traffic from the roads. No one would deny that there is scope for more efficient main-line operation, but it is easy to exaggerate the difficulties of through coach working; in almost every case such working is justified by traffic considerations.

In conclusion, may I quote just one example of successful and regular operation—namely, the "Atlantic Coast Express" of the Southern Region. This train is made up to anything between 500 and 600 tons and worked at comparatively high speeds over a difficult main line by single locomotives between Waterloo and Exeter. And yet it has no fewer than eight separate destinations—Seaton, Sidmouth, Exmouth, Plymouth, Padstow, Bude, Torrington, and Ilfracombe—giving through communication from London to 66 different stations in the West Country. Except perhaps during the summer months, none of these lines could support individually a through train from London. Could one quote a better example of efficient operation combined with service to the travelling public?

Yours faithfully,
A. R. MORDAUNT

7, Princes Square,
London, W.2. January 26

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Regarding your comment on my letter in the January 23 issue, it is hard to see how the running of "more vacuum-braked freight trains" affects the argument. There must still be local passenger and goods trains serving intermediate stations, and a higher average speed for these than 20-30 m.p.h. is improbable. The point really comes to the elasticity of "as little variation as possible," to which the answer would seem to be the same as that to the old problem of how long is a piece of string.

Again, although your proposal may increase line capacity, I am not at all clear how it promotes economy of engine and coaching stock user. The lengthening of overall journey time resulting from levelling down speed hardly can reduce the number of engines and coaches required, while the possible increase in goods train speeds would have a negligible effect on turn-round of wagons.

In the United States, super-high-speed trains have not only paid their own expenses many times over, but have increased receipts generally through the self-advertisement and publicity which their running has produced. I am glad to see Mr. Charlewood is equally of the opinion that their effects on line occupation is not as severe as made out. Over the greater part of our main lines, surely, line occupation is not so dense that the running of a few selected super-high-speed expresses would cause serious dislocation.

In any case, however, my plea was for the continuance both of expresses in, say, the 50-60 m.p.h. zone, and of long-distance non-stop runs. For the first, there is the economy in stock and engines by their being thereby enabled to cover a bigger mileage a day than if the average speed was levelled down. For the second, I think you will agree that there is a certain expense incurred each time a train stops and starts, for which the use by the public of such intermediate stops would not compensate. There are also many trains which are fully loaded over a long distance, and it clearly would be both uneconomic and pointless to stop these at intermediate junctions.

Yours faithfully,
H. L. HAWKER

[It still appears that Mr. Hawker has not appreciated fully what was set out in the article referred to. No railway can work without a properly planned user of locomotives and trainmen, and the cost of these two prime movers, together with that of locomotive coal today, is such that it is necessary that the plan should be prepared on the basis of getting the maximum amount of productive work done in the least possible hours.

There will always have to be varying speeds of trains. It would be ridiculous if a half-loaded passenger train was not booked to stop at the station serving a busy commercial centre. It is appreciated that starting and stopping is expensive, but when there is traffic offering at a station bringing grist to the mill it is surely a necessity. Fitted freight trains serve two purposes—getting over the line quicker and also giving more prompt delivery of the customer's goods. Comparing the running of high-speed trains in the British Isles with those of America in our opinion is wrong. It would be more sound to compare those of the British Isles with countries in Europe.—ED., *R.G.*]

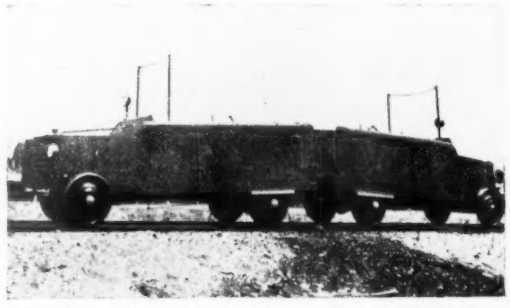
Railway Trolleys

P.O. Box 546,
Haifa, Palestine. December 9, 1947

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. A. H. Sommer, in his letter published in your November 14, 1947, issue, tends to look, naturally, at improvisation through the glasses of the maker of the genuine proprietary specific; tolerantly, but not warmly. It is realised that he treats of light road cars, but he might feel able to agree that, apart from the matter of removal from the track, the successful adaptation of a heavier vehicle differs but little from that of a light one. Stresses should be common, and matters such as springing, braking, and bearings will simply be in proportion to the respective masses.

Adhesion apart, there is nothing to choose between good track and perfect highway, save—at present—the impact of the open rail joint, the source of the "eventual disastrous results." To combat the vertical impacts by truly compensating the absence of pneumatic tyres calls for a design of wheel that does attain some degree of elasticity. The "substitution of pressed-steel rail wheels" must not imply the kind which proudly



Double-unit armoured trolley used on the Palestine Railways

achieves the acme of rigidity vertically for the greatest economy in far too mild a steel. Better those, even, than the home-made cast-iron monstrosity—a virtual flywheel where, of all situations, that effect is most undesirable. The common integral pressed wheel also does not afford the hardness of tread and flange essential to their resistance to wear, which is so important for the survival of the car axle and its counterpart details.

The ability to "toe-in" may be an asset. Cant, or rake, or whatever the car maker terms the inclination from the vertical, tends to counteract the coning that is usual in the rail tyre. The change to rail wheels can alter the incidence of critical speeds, and it has been found that compromise with the amount of "toe-in," coning, and flange clearance moved a frightening wheel wobble out of the normal speed range. An inclination to lock the differential, both for more effective braking and the avoidance of "flats" on the tyres, as well as adhesion considerations under certain conditions, weakened with the difficulty of finding a good and easy way, and in practice it did not seem to matter with the medium gradients and curves ruling. It pays to take full advantage of the perfect individual adjustment so readily obtainable with modern car brakes, and to combine the brakes of each for united application if two cars are coupled.

The conversions which provided the practical experience on which these remarks are based are those in the accompanying illustration, which is reproduced from the Annual Report, 1938-39, of the Palestine Railways. The back-to-back principle goes back at least to the first great war. It certainly provided the means of rapid retreat in emergency.

In Palestine 5 sets (*i.e.*, 10 chassis) were converted in 1936, with repeat orders in 1937 and 1938 for 7 and 6 sets respectively. In 1940 the fleet of 18 was overhauled and set aside by

the railway. The Army took over a batch in 1941 for despatch to the Eighth Army. Others had the armouring removed, and seats and hoods fitted for conveyance of railway staff; some were divided and fitted for turning by jacking for permanent way staff. The mileage of some must be phenomenal.

The writer's fixed conviction when converting the 1936 trucks was that every detail of the manufacturer's make should be retained that was practicable, or could be made practicable—and that was almost all of it. After all, why fail to take advantage of the research, the refinements, and the testing, only attainable in mass production on the grand scale? The manufacturer sets an example even in his ignition, tyres and so on. Mr. Sommer admits that rail trolleys are manufactured "in very limited quantities" but it is assumed that similar refinements are embodied in the construction from the prices which, he says, "at first sight appear high."

Yet the trolley manufacturer is not above incorporating the car maker's motive unit and, where suitable, other makers' accessories; then why not carry the principle a step further and adapt such types of car chassis as are ideal for standard gauge and above, and devote the valuable experience of railway requirements, already gained, to bodies of all kinds, elastic wheels, and foolproof engine-actuated jacking, in place of duplicate driving positions with their attendant waste of space, and extra radiators, comfortless reversible seats, and even the reverse-box. I am sure the effect would be to put all sensible railways out of the amateur conversion business, and to increase their affection for the rail trolley for many new purposes.

Yours faithfully,

A. L. JONES

British Railways' Financial Arrangements

18, Wheatsheaf Close, Woking,
Surrey. January 31

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Figures published in respect of most of our recently nationalised industries seem to indicate an unfortunate deficit. It is feared, but not hoped, that sooner or later British Railways may follow suit. This prompts me, as a layman on this subject, to inquire into the method these State corporations adopt in compiling their accounts.

For instance, British Railways are likely to be the National Coal Board's best customer; how are accounts between the two corporations settled? Does any money really pass?

Traffic on Government account—for instance troop trains—are these paid for? Similarly, what about the transport of mails?

Are British Railways insured or are losses through accidents, fire, etc., paid for directly by the Treasury?

Interest on £1,000,000,000 Transport Stock is apparently a charge on revenue. Do British Railways keep anything corresponding to a capital account or is new construction paid for by the Treasury?

Is British Railways' liability for taxation any different to the old main-line companies? I gather that their liability for rates is unaffected.

What is the position regarding all the W.D. locomotives still only on loan? Are British Railways still paying hire charges for them or are they about to be made a present of them?

I am sorry to trouble you about this, but I think it would be of general interest if these points perhaps could be expanded a little.

Yours, etc.,

J. B. LATHAM

[The ordinary financial transactions of the Commission are governed by provisions included in Part 6 of the Transport Act, 1947. The transport of goods, whether coal or otherwise, is paid in the normal way. We understand that the arrangements adopted by the four main-line railway companies for dealing with such matters as losses through accidents, fire, and so forth are being continued. The matter of railway rating was dealt with at length in our issue of December 19, 1947. Mr. Latham's questions in part seem to be based on the misapprehension that the British Transport Commission is a Government department, whereas it is not, but a public authority.—ED., *R.G.*]

A False Standard of Railway Efficiency

Frognal, N.W.3. February 2

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—If *La Tribune de Geneve* publishes many paragraphs like those quoted under the heading "A False Standard of Railway Efficiency" in your January 30 issue, it must add to the gaiety of Continental countries in these gloomy times. If the French National Railways have laid down hard and fast limits for passenger train-mileage, that is a decision of policy which is reasonable in these days of austerity and scarcity of fuel. The British railways did much the same thing on more than one occasion after September, 1939.

It is for the operating departments to make the best use of the allotted mileage, and the *Tribune's* article boils down to a suggestion that the Paris and Geneva services can be improved within the allotment. Statisticians have nothing to do with the case, and French railwaymen are much too logical to think that a standard of efficiency can be set up by the mere act of restricting train-mileage.

The *Tribune's* reference to mathematicians loving a formula which "shuts out every effort of imagination" is amusing. Your true mathematician may not be like "the lunatic, the lover and the poet . . . of imagination all-compact," but he cannot possess a one-track mind. Without the original thinking of mathematicians, there would not have been electric railways, the submarine telegraph, or radio communication, and much of the thinking has been done by Frenchmen.

Yours faithfully,

R. BELL

Publications Received

The Locomotives of the Southern Region of British Railways. 1948. Compiled and published by W. G. Tilling, 106, Great Dover Street, London, S.E.1. 8½ in. × 5½ in. 84 pp. Illustrated. Paper covers. Price 5s.—Previously, separate booklets, each of which dealt with one of the Sections of the Southern Railway, have been published by this author, and they have now been followed by a single booklet dealing with the complete Southern Region stock. The lists of numbers, names, classes, and building dates, and the tables of dimensions, follow a similar layout to those in the earlier booklets, and there are informative notes on each locomotive class, with particular reference to certain of the more noteworthy individual engines.

The B.C.A.S. Handbook of Pneumatic Equipment. Compiled and published by the British Compressed Air Society, 94/98, Petty France, Westminster, S.W.1. 9 in. × 5½ in. 191 pp. Price 20s.—Buyers are commonly exhorted by manufacturers to state their requirements exactly when ordering machinery and plant. Following the excellent principle that precision is preferable to generalisation, the publishers of this volume have foreseen that not all their customers can be compressed air experts, and have included a useful section on data required when ordering plant. Compressed air is not, however, a wholly accurate description of the scope of the work, which also deals wtih vacuum pumps and machinery for compressing coal gas, natural gas, oil gas, and other industrial gases. All the familiar uses of compressed air, as in pneumatic tools, spraying equipment, and pumps, are also covered.

Gateway to South Africa.—Published by authority of Mr. W. Marshall Clark, General Manager, South African Railways & Harbours, this brochure contains a description of the Cape Town foreshore development plan, which was envisaged some years ago, when the building of new docks in Table Bay resulted in 500 acres of land being reclaimed from the sea, and which recently has been approved. Mr. F. C. Sturrock, Minister of Transport, formed the Cape Town Foreshore Joint Technical Committee in 1945 to draw up an agreed plan, and this body consisted of a Chairman, Major-General G. S. Szlumper, who was the Director-General of Transportation of the British Ministry of Supply at that time, and four representatives each of the railway administration and the city council. The railway area forms an important part of the plan, which provides for a new railway station and a railway hotel in the business centre of the city, and as Cape Town depends to a very large extent on electric train services on suburban lines, special attention is being paid to the design of the new station so that it can serve adequately the daily flow of 200,000 passengers. Main line and suburban portions of the station will adjoin and front on to a large square facing Adderley Street. Goods facilities are being moved eastwards to reclaimed area in the direction of Woodstock. The present description, which is well illustrated by diagrams, photographs, and maps, deals with the project in broad outline only, and will be followed by a detailed report to be published before the end of the year.

Set of Six Postcards of Modern L.M.S. Locomotives in Colour. Obtainable from the London Midland Region (Advertising & Publicity), Euston House, N.W.1. Price, for set of six, 1s. 6d. (including Purchase Tax).—Each of these coloured postcards depicts a modern L.M.S.R. locomotive design, and also gives brief particulars and principal dimensions. The locomotive types shown are a Pacific of the "Coronation" class, a rebuilt "Royal Scot," a Class "5" mixed-traffic engine, a 2-8-0 of Class "8F," one of the Ivatt Class "2" Moguls, and a 2-6-4 tank engine.

The Scrap Heap

Driver Sounds Reveille

As a Hastings-Ashford train passes over a bridge outside Rye Station at 6.20 a.m., the engine-driver sounds his whistle. He is doing a favour to a couple who live in nearby King's Avenue. They cannot buy an alarm clock anywhere.

The wife wrote to Mr. W. Wakeford, Hastings Stationmaster, and asked if he could arrange for a "hoot" each morning. "My husband says not too loud, but I say, 'blow like blazes.'" The railwaymen, themselves early risers, took a sympathetic view of the appeal.—*From the "News Chronicle."*

* * *

100 YEARS AGO

From The Railway Times, *Feb.* 12, 1848

TO RAILWAY DIRECTORS, &c. &c.—WANTED, a SITUATION to superintend a finished LINE of RAILWAY, together with Permanent Way and Works. The length of line no object. The advertiser has had upwards of 12 years' experience on some of the best lines in the north of England, is a good draftsman, and can measure up and set out Works; has no objection to superintend the locomotive department. The highest references can be given as to character and qualifications.
Apply X. T. Z., 122, Fleet-street, London.

TEN POUNDS BONUS.—RAILWAY PROPRIETORS and others. The above sum, an active man, aged 33, will give to any Lady or Gentleman, who can procure him a situation on the Railway or at any of the stations. Character can be obtained from parties of the highest respectability. Secrecy and confidence may be relied on.
Address to W.C., 2, Box-tree-place, Grange-road, Bermondsey, London.

TO IRONFOUNDERS and IRONMASTERS.—The Advertiser will be happy to undertake the LONDON AGENCY of an extensive Establishment connected with the Iron Trade. The most satisfactory references can be offered.
Address B. A., Railway Times office, Fleet-street, London.

HARWICH and EASTERN COUNTIES JUNCTION RAILWAY.—A holder of Scrip in the above Railway being desirous of enforcing an early equitable division of the funds so long remaining in the hands of the Directors, will be happy to COMMUNICATE with other Scripholders with the view of effecting that object.
Letters to be addressed to Harwich, at Mr. Stowers's, law stationer, Warwick-court, Gray's-inn.

* * *

A Traveller's Odyssey

A correspondent in *The Scotsman* writes, more in sorrow than in anger, of his sufferings at Waverley Station, Edinburgh, where he arrived on January 13 at 11.40 p.m., by what he calls the 6.37 from Pitlochry (presumably the 6.39) 2 hr. 8 min. late, and much too late to connect with the 9.53 Galashiels train (which he describes as the 9.55). To his suggestion that a room in the railway hotel should be provided, the official in the stationmaster's office replied that, while privately sympathising, his instructions were that this was out of the question. This gentleman kindly allowed the luckless traveller to park luggage in his room and to sit by his fire.

The letter continues: "About midnight, I proceeded to the railway hotel to buy a meal, having had no food since 4 p.m. I explained to the official on night duty the circumstances of my case, and how I had already ascertained through the stationmaster's representative that there was no room to be had in the hotel. I was informed that I could not have a meal as I was not resident in the hotel; the officials had no power to sell even a sandwich to a stranded traveller on British Railways.

"So I went sorrowfully away empty to my friend downstairs who, in the wee sma' hours of the morning, shared with me his sandwich and his tea, and, with authority duly secured, smuggled me aboard a paper train at 4.10 a.m. I reached by destination finally at 6 a.m."

In Parliament

Mr. Barnes was asked a number of questions about conditions on the railways, and answered that these were matters for the British Transport Commission. A Conservative and a Socialist continued to press him. He replied in historic words: "When, under the control agreement, the nation pays the whole of the rent of the railways, such questions can be asked. I contend that with the passing of the Transport Act the railways were decontrolled on January 1, and the whole situation has altered."

Indeed it has. Until January 1 the railways were under the control of wicked, grasping capitalists; and every week Mr. Barnes answered packs of questions in the Commons about why the 8.11 from Shenfield to Liverpool Street was five minutes late, and similar important matters.

Now the sinister hirelings of corrupt capitalism have been replaced by the devoted servants of the public (they're just the same chaps, and they're changing their cap-badges slowly); and it is quite impossible for the nation's representatives to extract from the responsible Minister an answer to any question about the nation's property.

These are matters for the British Transport Commission: and the British Transport Commission doesn't stand up at the dispatch box to be heckled. The high-level economic theorists have a phrase for this; they call it "planned devolution of function." Unkinder folk might call it passing the buck.—*From "The Evening News."*

* * *

Point for Mr. Barnes

Mr. Alfred Barnes, Minister of Transport, refuses to answer questions in Parliament about the nationalised railways. He refers M.P.s to the Transport Commission.

This will relieve the Ministry of much work. Mr. Barnes should now consider divesting himself of some of his huge staff of Civil Servants.

According to the latest figures, the Ministry of Transport employs 9,016 people in the United Kingdom, and 408 abroad. Estimates of salaries to be paid this year: £3,353,100. Travelling expenses add another £245,000 to the bill.—*From "The Evening News."*

* * *

Summary Justice for Fare Dodgers

A novel procedure was employed by the Eastern Punjab Railway in its drive against ticketless travel, when officials, accompanied by a Special Railway Magistrate and police, held up an express train by the use of detonators. As the driver brought his engine to a sudden stop, passengers began to ask: Was it robbers? Had the engine been attacked, or was it a serious accident? The majority, who had paid their fares, got an agreeable surprise when they found that they were subjected to no graver ordeal than being asked to show their tickets.

The police cordoned the train and the railway staff began to weed out the defaulters. About a hundred passengers out of a total of 1,000 were found without tickets, or having committed some kind of irregularity. Most of these paid up, some readily and others after protests. The Special Railway Magistrate held court on the track and tried those who were suspected of defrauding the railway.

The E.P.R. has organised several such raids lately and collected an average of Rs. 700 on each occasion. Indian railways have intensified their drive against ticketless travel to save as much as possible of their annual loss of Rs. 8 crores on this account.

* * *

Can I Help You?

In 1947, the inquiry office on No. 10 platform, Kings Cross, dealt with 1,060,000 telephone calls, 966,000 inquiry office personal inquiries, and 47,124 letters asking for sleeping berths.

* * *

Quicker Turn-Round

The great Wagon Turn-Round caused miracles of activity at Tipper's Hill. On the north side, where the old Great Southern line threw out its tentacles of sidings, they cleared trucks that had been there for months, and even found a couple of V-Day ones. On the south side, whose sidings fanned out from what used to be the old East-Central, was shunting talent that challenged all England. In nine days they shifted a thousand trucks all but a few hundred, and sent rude messages round to the north side about a 1916 load of straw packing which they swore had a Great Southern label.

This roused old Tim Tapwill, the north side champion, to retaliation. He got up in the small hours of one midnight and went trespassing on the south side to see what he could stir up with his shunt pole. He delved right into the hillside in his zeal and unearthed a completely hidden truck. He chalked on it "Greetings from the Bower War" and went home to bed. Next night two prowlers from the south made a similar excursion into northern territory and brought up nothing less than an old engine of the Rocket class. On this they scrawled "Happy New Year from Stephenson." Two more nights, with more volunteers turning out, brought to light wagons and loads from before business history, and the decomposed packing under which they were buried was disposed of by the railways as chemical fertiliser.

Such a turn-round effort will never need to be repeated at Tipper's Hill. The wagons that used to be shunted into the bays at each side of the hill now pass right through on the line they found where the hill was.—*Reproduced by permission of the proprietors of "Punch."*

Centenary of an early C.N.R. Unit

To mark the centenary of opening last year of the Montreal & Lachine Railroad, the Canadian National Railways distributed as souvenirs excellent facsimile reproductions (with the addition of centenary dates) of the metal third class tickets of 100 years ago. The hole facilitated stringing on a wire when the conductor collected the tokens

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Progress of New Lines

The new line from Whites to Odendaalsrust, which will feed the Orange Free State goldfields, is being pushed ahead. Earthworks on the Whites-Welkom section are almost complete, and much of the formation has been built up. Nearly five miles of permanent ballasting has been laid, and the trackwork to Welkom is finished. Earthworks on the remaining portion of the line, from Welkom to Odendaalsrust, are nearly completed, and it is hoped to have the line open under construction conditions soon.

On the Oogies-Vandyksdrift section, which was opened for traffic in June, 1946, to meet an urgent demand from the coal industry, considerable work was done during 1947 on station buildings, pump houses, and European and non-European quarters; as well as on locomotive and carriage & wagon installations.

Earthworks and the construction of culverts on the new line between Springs and Welgedacht are well advanced, and considerable excavation work has been carried out on the avoiding line at Vereeniging.

Workshops Site at Durban

Construction work on the new Durban workshops which are to be erected on reclaimed land at the head of Durban Bay, to replace the present shops, has been confined so far to preparation of the site, and has been limited to reclamation, levelling, covering, and drainage. An area of more than 500,000 sq. yd has been reclaimed by the dredgers, levelled, and top-dressed. To date, 3,000,000 cu. yd. of sand have been pumped ashore from the dredgers. The canalisation of the Umhlatuzana and Umbilo rivers, which will pass through the areas to be occupied by the workshops and the new marshalling yard, is making good progress, and nearly half the concrete work has been completed.

Welded Rails

After overseas experiments had proved the feasibility of placing in the track long lengths of welded rails, South African Railways engineers began their own investigations to decide the lengths permissible under South African conditions. Three systems of welding rails were tried—arc-welding, Thermit welding, and flash-butt welding. The failure of arc-welded joints led to the abandonment of this method. The Thermit welding process, also, has been discontinued. Before the abolition of this process, it was used to weld 120-ft. rails into lengths of 240 and 480 ft., and these lengths are still being kept under observation.

A stretch of continuous track, a mile in length, was tested near Ladysmith. In this experiment 40-ft. lengths were flash-butt welded into rails of 120 ft., and these were then Thermit welded into the total length of one mile. The section was laid in 1941, but in 1946 it was uplifted owing to the development of defects.

The flash-butt process has proved reliable and generally suitable for main lines. The present practice is to weld three standard lengths of 40 ft. into one continuous rail. More than 1,600 miles of track on the South African Railways have now been laid with 120-ft. welded rails, and the work of rerailing is continuing. The 120-ft. rail was decided on as it was the longest that could be transported round curves of 300-ft. radius on the 3-ft. 6-in. gauge of the South African Railways.

Some of these welded rails have been in service for more than ten years, and up to the present time only 64 joints have failed out of approximately 700,000. Continuous rails have proved very suitable in tunnels, where the elimination of rail-joint maintenance is a decided advantage.

There are two flash-butt welding depots in the Union—one at Danskraal, in Natal, and the other at Elandsfontein, in the Transvaal. A total staff of about 1,100 is engaged on this work. In addition, the Elandsfontein depot produces structural steelwork for the railways.

RHODESIA

Sinoia to Kafue Cut-off

The Central African Council has decided to renew discussions with the Rhodesia Railways on the question of making additional surveys for a new line between Sinoia and Kafue. This would provide a direct route from Salisbury to the northern line from Bulawayo, which connects with the Belgian Congo railways at Ndola. Traffic at present has to make a lengthy detour *via* Bulawayo.

Port of Beira

Sir Godfrey Huggins, Prime Minister of Southern Rhodesia, has stated that loss of time at Beira owing to shortage of equipment on the railways is a "mere bagatelle" compared to the loss of time owing to inadequate port facilities. To improve the port would take a long time, to improve the railways a relatively short time, and this improvement has begun already. "Even if £7,000,000 were spent on the port," said Sir Godfrey, "it would be quite inadequate for the business estimated for the next ten years."

The Central African Council expects that within ten years the traffic for the three territories of Southern and Northern Rhodesia and Nyasaland will be doubled, hence the urgency for a link-up with a West Coast port. It is hoped to resume surveys this year for a line to connect with Walvis Bay. (See *The Railway Gazette* of February 6).

Cost of Living Allowances

With effect from January 1, the former 21 per cent. cost of living allowance paid to Rhodesia Railways staff has been replaced by a 15 per cent. increase in basic salaries and wages, plus a cost of living allowance of 10 per cent. on the adjusted basic rates. The children's allowances are being continued.

The 10 per cent. cost of living allowance will not change unless the index figure rises to 142 or falls to 130, when the percentage will be increased to 14 per cent. or reduced to 6 per cent.; and thereafter a 4 point rise or fall will result in a 4 per cent. increase or decrease in allowances then paid. These adjustments will be made as from the beginning of the month following the publication date of the cost of living index. Overtime payments are made at the enhanced rate of basic salaries and wages. The provision for fluctuations in the official index figure provides the staff with a safeguard during the next two years, which is the period of the agreement unanimously reached by the newly-constituted National Industrial Council for the Rhodesia Railways, which council includes representatives of the railway administration and the unions.

EGYPT

Combined Rail-Hotel Tickets

As from December 15, 1947, the Egyptian State Railways, under arrangements with hotels in Upper Egypt and the International Sleeping Car Company, have issued combined railway, sleeping car, and hotel coupons at reduced rates. These coupons include hotel accommodation for two days and one night; five days and four nights; seven days and six nights; or ten days and nine nights. The rates include hot or cold bath daily, meals, hotel charges, and railway fares for the journey from Cairo, Alexandria, or Suez to Luxor and Assuan and return.

Holders are permitted to divide their time between Luxor and Assuan, and to break their journey at Baliana, Kena, Esna and Edfu, where they can visit ancient Egyptian remains. The percentage of reduction on the railway fares is 27·5 per cent. These arrangements will remain in force until April 30.

CANADA

Imports from U.S.A.

A partial embargo on railway goods traffic to Canada, which was imposed on November 20, has been repealed by the Association of American Railroads now that exporters in the United States have had time to familiarise themselves with Canadian import restrictions. The embargo instructed the U.S. railways not to export goods for Canadian destinations unless the consignor could certify that they would be admitted by the Canadian Customs. It was imposed after the announcement by the Canadian Government of restrictions on imports to conserve dollar balances, and had the object of avoiding congestion at stations on the border.

Railway Extension in Gaspé Peninsula

A group of French-Canadian business interests which recently acquired the Canada & Gulf Terminal Railway proposes to extend the line from its present terminus at Matane to Gaspé. Such an extension is expected to promote the development of the numerous natural resources of the Gaspé Peninsula. At present the Canada & Gulf Terminal Railway is about 30 miles in length, and runs from Mont Joli to Matane. The Gaspé Peninsula is a part of the Province of Quebec.

UNITED STATES

Telephone Communication with C. & O. Trains

Permission has been given to the C. & O. by the Federal Communications Commission to erect lineside wires for inductive telephone communication with trains running between Cincinnati and Orange, Va. Experimental public telephone service will be available in the observation cars of trains operating on this route.

At three points there will be terminal equipment connected with the ordinary telephone system. This apparatus will convert the normal telephone speech currents to higher frequencies for distribution to lineside satellite stations, where a further increase in frequency will be made

before the signals are fed to the wires of the inductive system. The apparatus in the trains will enable two telephone conversations to be carried on simultaneously, and the spacing of the satellite stations will be such that at any point along the route satisfactory communication can be obtained through one or other of them.

Chicago-Los Angeles Accelerations

As from December 14 last, a cut of 1 hr. 29 min. has been made in the westbound schedule of the "Chief" express of the Atchison, Topeka & Santa Fe between Chicago and Los Angeles. In the reverse direction a saving of 1 hr. has been made. On the same date the "Grand Canyon" express of the same railway had its westbound schedule reduced by 29 min., but the eastbound schedule of this train was unchanged.

CHINA

Progress of Chungking-Chengtu Railway

Tunnels and foundations for a number of bridges on the new railway from Chungking to Chengtu, in Szechwan Province, have been completed, and it is hoped to have the line open for traffic by the end of 1949 if the necessary funds and materials are made available. Plans have been made for four branch lines connecting with towns near the main route. One of these will run from the main line at Lungchang to Luhsien, where connection will be made with the forthcoming Szechwan-Yunnan Railway.

CEYLON

Accident to Mail Train

Two passengers were killed and 18 injured as a result of an accident to the down mail train at Nanu Oya, *en route* for Colombo, on the night of January 22. The train left Nanu Oya on time at 10.30 p.m. but instead of following the main line, entered a refuge siding a quarter of a mile from the station. The engine, after overrunning the buffers, ran into the bank beyond, and the impact resulted in the two leading coaches for third class passengers being telescoped.

As far as can be ascertained, the cause of the accident was the setting of the points for the refuge siding instead of the main line due to a mechanical defect following an electrical failure.

Increase in Rates and Fares

To bridge the gap of nearly Rs. 20 million between estimated revenue and expenditure during the present financial year, a general increase in rates and fares has been for some time under the consideration of the new Government. No alternative seemed possible, if the railway was to continue as a self-supporting unit. It was decided, therefore, to implement the increase with effect from February 1, excluding third class passenger fares, as a measure of relief to the poorer sections of the public, already affected by the high cost of living.

The new fares represent an advance of 50 per cent. on the pre-war fares, or about 31¼ per cent. on the charges hitherto in force. The increase in season tickets is applicable to all classes, and is on the telescopic principle, varying from 31¼ per cent. on distances up to 10 miles to only 10 per cent. for distances of 21 miles and over.

For parcels traffic, the increase in rates is 50 per cent. There had been no increase in these rates since the war. In the case of certain luxuries, such as horses, cars, and carriages, the new charges are 100 per cent. more than the previous rates. The pre-war goods rates have been increased by 50 per cent., which represents an increase of 13·64 per cent. over the previous scale.

Owing to the decision not to increase third class fares, the railway budget will still have a shortfall of Rs. 8 million. Costs of materials and running expenses are now 283 per cent. above the 1940 figures.

INDIA & PAKISTAN

Assam Railway Link Approved

The Railway Standing Finance Committee of the Indian Dominion Parliament recently approved of the construction of the direct railway line connecting Assam with Calcutta without having to touch any part of Eastern Pakistan (see *The Railway Gazette* of December 12, 1947). The preliminary action taken by the Railway Board to set up the organisation necessary for constructing the line, which will involve the erection of two major bridges over the Teesta and Torsa Rivers, also was approved. The committee also confirmed the Government of India's action in serving a notice of special purchase for Rs. 70 lakhs (£525,000) of the Darjeeling Himalayan Railway Extensions as a preliminary to the construction of the line from Kishenganj to Panchanai.

Refugee Clash at Gujrat

After a long spell of peaceful transit on the North Western Railway of non-Muslim refugees on their way to India, there was a serious encounter between Indian military personnel escorting a refugee train from Mari Indus (Pakistan) to Karnal (India), and tribesmen and Muslim refugees at Gujrat Station on January 12.

It is reported that when the train pulled up at Gujrat, Muslim refugees from Jammu, who had been living on the platform for several days, tried to force their way into it, presumably mistaking it for a normal service. Their entry was resisted by the Indian military escorts, who, on finding themselves outnumbered, threw a hand grenade, causing about a dozen casualties. The explosion attracted a number of tribesmen, who were on their way to Jammu. They joined in the attack on the train and exchanged fire with the escorts. Order was restored ultimately by Pakistan troops. The train escorts and the non-Muslim refugees sustained heavy casualties, estimated at about 1,000.

Rolling Stock Programme

The Railway Standing Finance Committee of the Indian Parliament, at its first meeting held on December 16, 1947, under the chairmanship of Dr. John Matthai, Minister for Transport, approved the railway stock and machinery programme for 1948-49, involving a total expenditure of Rs. 26.7 crores, out of which Rs. 19.14 crores will be charged to the depreciation fund. The rolling stock programme provides for the purchase of 243 locomotives and 109 boilers, and the building of 58 metre-gauge locomotives in the B.B. & C.I. railway workshops at Ajmer.

There is provision also for 1,100 coaching vehicles, including 648 brought forward from the previous programme; and for 6,359 wagons, including 1,000 brought forward. Of the coaching stock, 350 broad-gauge coaches will be obtained from the coach-building firms in India, and the rest will be built in the railway workshops. Coaches to be obtained from manufacturers in India will be of steel, and 10 ft. wide; while the coaches built in railway workshops will be of conventional design.

FRANCE

Model Locomotives and Miniature Railway

An exhibition of model locomotives and a miniature railway in operation at the Gare St. Lazare, Paris, attracted numerous visitors. Dr. Fabrégas, of Perpignan, loaned his collection of models to aid in raising funds to found a home for French railwaymen disabled in the war. Among the exhibits were models of the first train to St. Germain in 1837, Stephenson's *Planet*, of 1830, Pacific, Mountain, and Mikado locomotives, and a Mogul type that could run for 50 min. under its own steam. A curiosity was a locomotive built by a French railwayman from old meat cans when interned in a German camp.

U.S.S.R.

Moscow Underground Extensions

Extensions aggregating 12 miles in length are reported as being in hand by the Moscow Underground administration (see also *The Railway Gazette* of November 7, 1947). Among the works involved are two tube bores under the Moskva River, each 550 ft. in length. To keep the workings from flooding, some 84,000 cu. ft. of water an hour are having to be pumped out. Altogether there are six under-river crossings under construction, one of which is nearing completion.

POLAND

Delivery of Locomotives from U.S.A.

The first 29 of 100 locomotives built for the Polish State Railways by the American Locomotive Company, Baldwins, and the Lima Locomotive Works, reached Gdynia at the end of December. Arrival of the remainder, in three shipments, is expected shortly.

The locomotives are designed for haulage of coal from Silesia to Szczecin, Gdynia, and Gdansk. They have an operating speed of 50 m.p.h., a haulage capacity of 2,500 tons, and are equipped with mechanical stokers and 24-volt 500-watt electric generators. The tenders carry 14 tons of coal and 7,000 gal. of water.

Mobile X-ray Unit

The first Polish-built mobile X-ray unit has just been completed in the State Railways Workshops at Poznan from two pre-war burnt-out Pullman cars. The cost of reconstruction was $40,000. One of the two coaches has been equipped as living accommodation for the staff, and is fitted with a bathroom, kitchen, and small dark room. It also houses the generator for the X-ray apparatus.

The second coach is divided into two parts, one of which is used as dressing quarters by patients, while the other houses the X-ray equipment, which was provided through the Ministry of Health and built by General Radiological Limited, of London. The latter compartment is insulated with lead sheeting to protect the operators and others from ill effects from the rays.

The unit has been on view recently at Warsaw Main Station prior to leaving for Poznan, where it will be based. The staff consists of a radiographer with two assistants. It is proposed to build three other similar units, all of which will be used in the diagnosis of tuberculosis in the current campaign to stamp out this disease.

The Brussels Junction Railway

Progress in construction of a direct line, mostly in tunnel, between the Nord and Midi stations

AFTER several decades of intermittent work, interrupted by the two world wars, the great undertaking of linking the Nord and Midi stations of Brussels has reached its final stages. The work has been the subject of a series of articles in our Belgian contemporary *La Technique des Travaux*, to which we are indebted for the following particulars, and for the maps and photographs reproduced.

The idea of connecting these two main-line stations by a direct cross-town route is as old as the railways themselves. A connection did, in fact, exist between 1841 and 1855, in the shape of a single track at street level; trains, running at the modest speed of 3 m.p.h., were preceded by a flagman, sounding a bell. It is hardly surprising that this practice did not survive. But the need for an efficient connection became more and more apparent. The existing rail links between the two stations, which are less than two miles apart as the crow flies, consist of two circuitous routes, the shorter of which is seven miles long. These routes therefore are of use for freight traffic only.

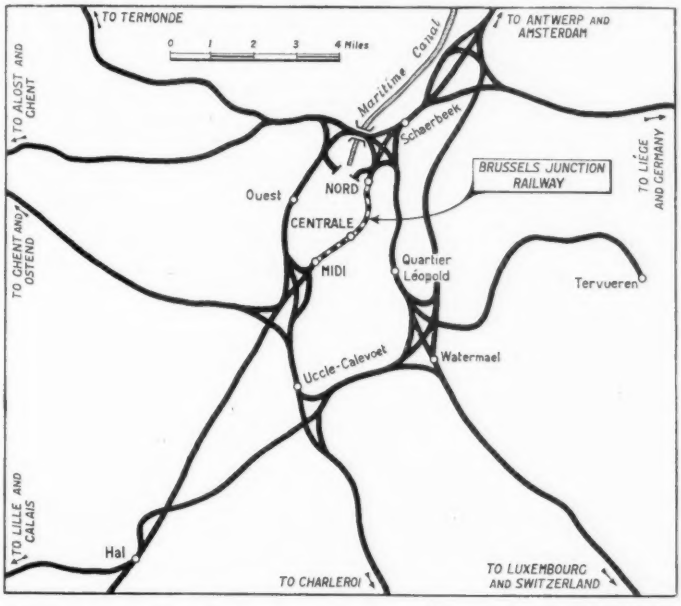
After examining three proposals, a special commission decided unanimously in favour of a direct junction line. This decision dates back to 1901, but it took another 10 years before work was begun in earnest. A viaduct section of the line in the vicinity of the Gare du Midi had been completed, and certain excavation works were in progress, when the war of 1914 called a halt. Post-war shortage and endless polemics on the merits, or otherwise, of the prospective junction line prolonged the interval until finally, in 1935, Royal Assent was given to an Act which created a special office charged with carrying on the work.

The Office National pour l'Achèvement de la Jonction Nord-Midi," or "O.N.J." for short, re-examined all the available surveys in the light of the developments which had occurred during the intervening years. The plan finally adopted was that of M. Frédéric Bruneel, Chief Engineer of the Belgian National Railways. His project for a six-track junction line, partly on viaducts but mostly in tunnel, took account of the various works and expropriations already carried out at various times, and embodied a good solution of the difficult problem arising out of the link-up with existing railway tracks in the north and south of the city.

Brussels, with a population of one million, is not large enough to make the construction of self-contained urban underground railways an economic proposition. Priority is given to making the main-line railway network a highly efficient transport system, capable of coping not only with long-distance traffic, but with heavy flows of suburban and urban traffic as well. For this purpose, two measures were considered vital. First, the electrification of the railways within some 30 miles of Brussels, where three-quarters of all journeys on the Belgian railways take place; and, secondly the creation of the junction line, which, apart from linking up the main lines of the north and south, will extend frequent train services into the centre of the city.

To enable the new line to discharge this function, there will be three intermediate stations. The midway point, or Gare Centrale, will be served by trains of all categories; it therefore will become the most important railway centre in the city, served by long-distance and suburban trains for all directions. The two other new stations, Chapelle and Congrès, will be served by local trains only, thus being like ordinary urban underground stations.

The Brussels subsoil, consisting mostly of loose sand, precludes any possibility of adopting a tube method of construction for the six tracks. The large tunnel therefore had to be constructed by the cut-and-cover method, involving the demolition of much property, and temporary interference with road traffic. The opportunity is being taken of carrying out large-scale slum clearance schemes, and of improving the road network along the course of the line. On certain deep-lying sections of the tunnel, the space between the tunnel roof and the road surface is used for road tunnels or for underground garages. Also, the raising of the tracks which will be required both at the Gare du Midi and the Gare du Nord, to align them with the new viaduct approaches, has provided a welcome opportunity for creating new road connections at right angles to the direction of the railway.



Direct link between northern and southern lines to be provided by the Brussels Junction Railway

Starting from the Gare du Midi, the junction line first enters on a viaduct nearly 1,000 yd. length, ending near the Rue des Brigittines. This is the section which had been completed before 1914, but re-surveying and reinforcement of the arches and bridges is necessary. Just north of the Rue des Brigittines, the six tracks enter the tunnel section, which has a total length of nearly 1¼ miles and ends near the Rue Saint Lazare. From here another viaduct, 220 yd. long, links the junction line with the Gare du Nord, the tracks of which also will have to be raised. The tunnel section has to avoid the foundations of a number of important buildings, including historical monuments, so that the route is somewhat tortuous. The gradients, however, do not exceed 1 in 200.

Special Construction Method

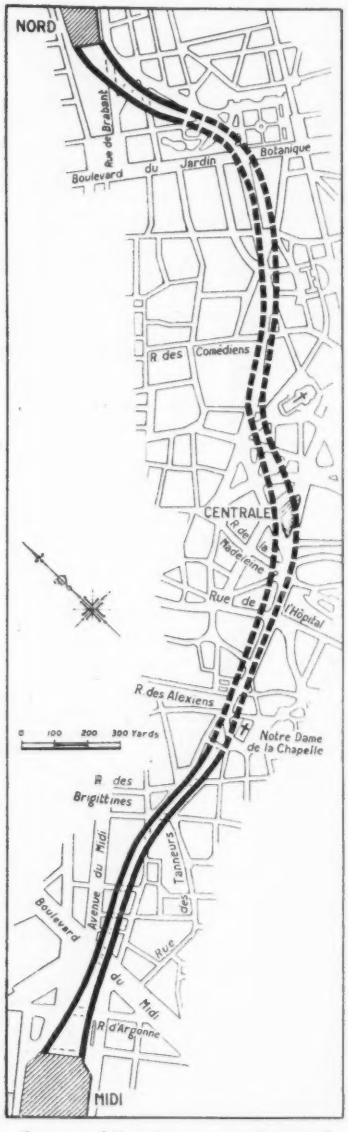
The construction of a tunnel of such length, depth, and width along the side of a hill, through unreliable subsoil and right across the centre of a busy town, naturally constitutes a major structural problem. It called for the development of a special construction method, which owes its conception to the former General Manager of the O.N.J., the late M. Franchimont. His method, which earned him the biennial award of the Belgian Royal Academy, makes use of double curtains of sheet piling, which are driven into the soil on each side of the tunnel strip, and are left there so as to serve, eventually, as the side walls of the final structure. The sheet piling has a length of 60 to 72 ft; less than half of it extends below the tunnel sole. In order to ensure maximum durability, some 0·4 per cent. copper has been added to the steel, and hot tar has been applied to seal the pores of the metal against oxidisation.

The normal cross-section of the tunnel consists of three portions, each containing one pair of tracks, and separated from each other by two rows of reinforced concrete stanchions measuring about 2 ft. by 12 ft. In the longitudinal direction, these stanchions are separated by bays, 13 ft. long, which will accommodate the signalling apparatus and serve as a refuge for staff working on the lines. In order to use these stanchions even during the initial excavation work, a special foundation method has been devised for them. A well is sunk into the soil at the appropriate point, and a steel tube of about 5-ft. dia. is forced into it, and then filled half way with concrete. This is the foundation on which the stanchion is placed. By means of small metal plates, it is possible to make minor vertical adjustments which may prove to be necessary.

As work proceeds, the stanchions are

connected, at various levels, by longitudinal and transverse girders. Special horizontal beams are built in to transmit the earth pressure from the sheet piling into the transverse girders. Joints to permit longitudinal expansion are arranged at intervals of about 80 ft.

The construction of the tunnel has been divided into five sections. The first section, 440 yd. in length, extends from the southern entrance of the tunnel to the Notre Dame de la Chapelle. Highly specialised instruments were used to register even the slightest movements in the foundations of the building.



Course of line in open and tunnel (broken lines) between Brussels termini

The second tunnel section, extending some 550 yd. to the north of the first, includes the site of the Gare Centrale. The tunnel consequently widens to accommodate the three island platforms of the station; and as the route of this section lies on a curve, the dimensions of all stanchions and cross-girders had to be calculated individually. Further complications arise from the need to provide special ventilation shafts for the steam locomotives of trains standing at the platforms, and to adapt the alignment of the stairs and escalators between the platforms and the booking hall so as to suit the layout of the latter. Work on this section of the tunnel was completed during the war.

The third section, also some 550 yd. long, consists of the tunnel just north of the Gare Centrale. Work on this section was interrupted in 1941 and resumed in 1945, and should be completed in 1949. It includes difficult underpinning of the building of the Belgian National Bank. Owing to the post-war shortage of steel, the method of construction was modified somewhat on this and the following sections. The stanchions now consist of reinforced concrete instead of steel, and certain elements of the horizontal girderwork used during the excavation no longer become part of the final structure, but are recovered and used again.

Work on the fourth tunnel section, some 440 yd. in length, has been facilitated by the proximity of the Gare du Nord, where rail transport for materials is available. Over some of its length, the space between tunnel roof and surface is used for a road tunnel, which will improve road communications between the town centre and the Gare du Nord. Work on this section also should be completed in 1949.

The fifth section covers the remaining 220 yd. of the tunnel, which is gently curved and links up with the approach viaduct to the Gare du Nord. Owing to the small depth of the tunnel, work on this section has been relatively easy, and the construction method was modified so that there is only one central row of stanchions, with three tracks on each side. The construction of the viaducts linking the junction with the Gare du Nord and Gare du Midi, and the rebuilding of these stations, represents in itself a work of major magnitude.

Transport Conditions in Palestine

Essential services maintained against a background of strife and pillage

(From a Correspondent)

THE turn of the year 1947-1948 was a momentous period in the history of Palestine. The consequences of the decision to partition the country made themselves felt by the activity of both claimants to it, while from neighbouring States came news of impending intervention.

The railways suffered from sabotage, both in the now time-honoured manner of actual damage, and by the developing art of holding trains up and plundering them *en route*, notwithstanding the armed guards carried by all goods trains in the country. Systematic interference with goods trains became a serious menace to the country, and the military authorities found it necessary to provide some protection, the effect of which was to reduce though not to eliminate the robberies. During December some 700 tons of goods were stolen (grains, flour, sugar, cement, citrus and general goods), not to mention mails and about 40 cows.

The situation has not been without its humorous moments. On one occasion, at least, the train guard, who was powerless to interfere once the escort guards had been disarmed, took his portable telephone to the track-side wires and gave a minute-by-minute commentary to the central controllers as the pillaging progressed, detailing the wagons and their contents as one after another they attracted the attention of the marauders.

Lawlessness is prevalent in the country. Haifa was under fire for three days in mid-January. Intermittent shooting has been experienced for weeks. The yards at Haifa East Station have suffered regularly from desultory sniping. The difficulties of keeping the wheels moving in such circumstances will be well known, while the disturbed state of mind of the staff (whose economic fate is as uncertain as their continued existence in so turbulent a community) is not conducive to the smooth working of the organisation.

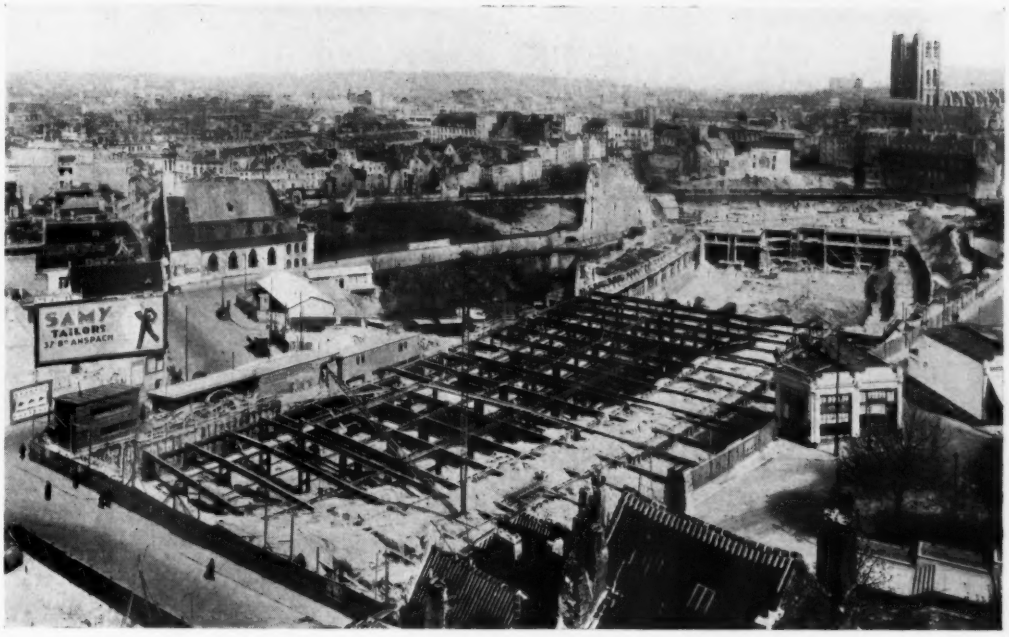
At the height of the citrus export season, labour difficulties arising directly out of the state of insecurity in the country closed the railway between Petah Tiqva, in one of the most important citrus-growing areas, and Ras el Ain, on the Haifa-Lydda line. The first attempts to reopen it were thwarted by further sabotage, but finally traffic was resumed with the help of the Army on January 10.

In spite of all obstacles the wheels continued to turn and traffic to move. Among the more important traffics the railways moved during December some 19,000 tons of oil, 11,500 tons of cement, 3,500 tons of potash, and about 1,100,000 cases of citrus. The quantity of cement and citrus moved during December exceeded that for the previous month; it will be observed, also, that the extent of the thefts can be exaggerated if taken out of its correct perspective.

In November the cholera epidemic in Egypt led to the interruption of through goods train services between Egypt and Palestine. Passengers continued to be permitted to enter Palestine, but had to proceed, whatever their destination, to Haifa for quarantine. They have been allowed recently to proceed direct to destination, but have to remain for at least five days under close surveillance by the local district medical officer. Goods traffic became normal again in late December, except that the import into Palestine of fresh fruit, vegetables, wet fish, and similar commodities continued to be barred. Cholera in Syria is now threatening to disrupt cross-frontier services in the northern parts of Palestine.

Postal services in the country are suffering appreciable delays, and road transport, too, is affected badly. It is the more pleasing, therefore, to record that the Palestine Railways have contrived so far to meet the requirements of the military authorities in their evacuation programmes, and this at a time when the bulk movement of the main export crop of the country also has been making its yearly heavy demands on them.

The Brussels Junction Railway



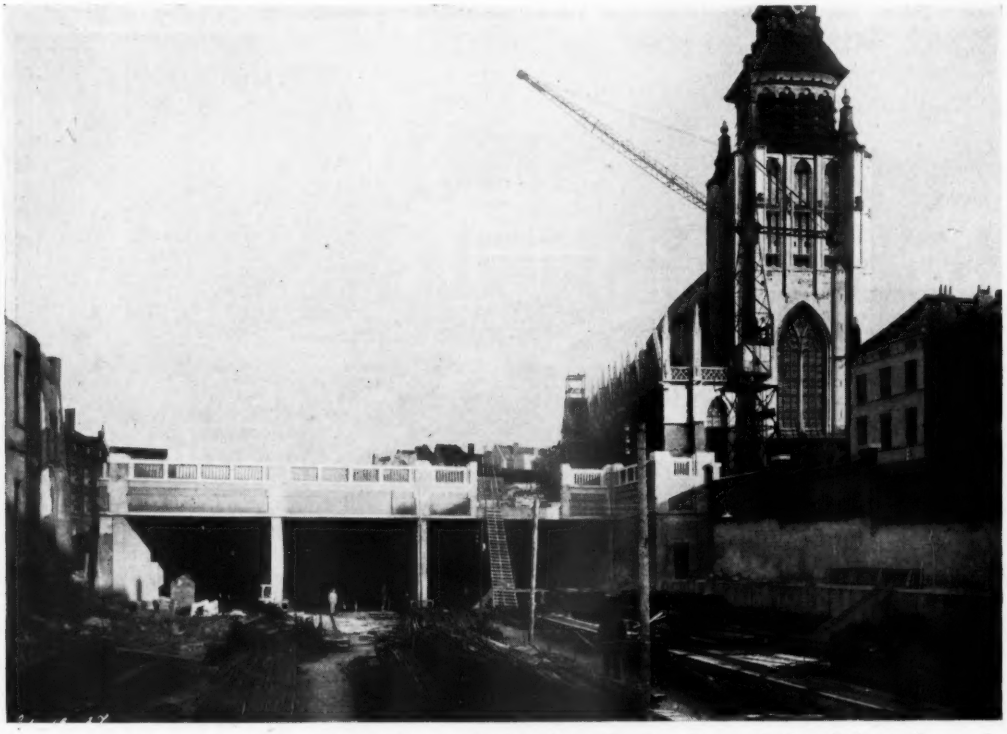
General view of cut-and-cover tunnel construction on the second section of the line

Site of the Gare Centrale, which will be served by all long-distance and surburban trains

Photos ["*La Technique des Travaux*"

The Brussels Junction Railway

Section of completed tunnel, showing the three passages separated by concrete pillars. The arches will be used for installing signalling equipment, and will serve as refuges for men working on the line



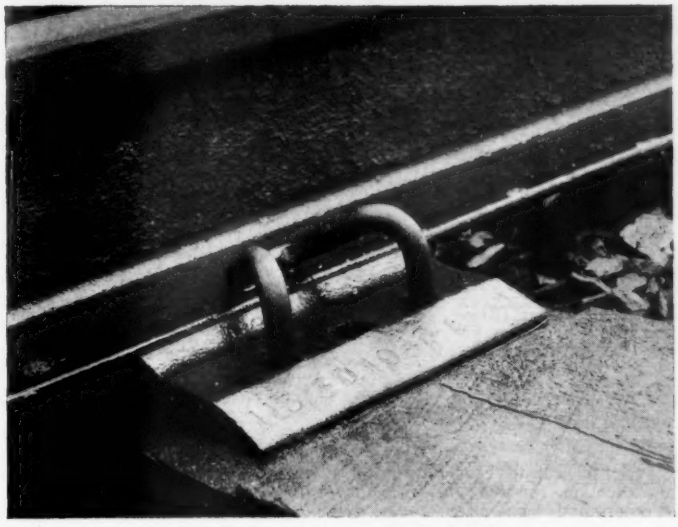
Entrance to the tunnel seen from the southern end of the line, showing the proximity of the works to the church of Notre Dame de la Chapelle

Photos] ["*La Technique des Travaux*"

Spring-Steel Rail Spikes

Design permitting limited vertical movement without loss of grip

(By a Correspondent)



No. 3 spike in use on London Midland Region track

RAILWAY engineers are familiar with the modern trend towards the use of heat-treated fittings of spring steel in the fastening together of railway track components. The experience of recent years has shown conclusively the great advantages to be obtained from steels responsive to suitable heat-treatment, when combined with a design of fastening capable of applying the inherent properties of such steels to the resistance of movement. The perfection of methods of manufacturing control has enabled such fastenings to be mass-produced, hardened, and tempered with the certainty that each fastening will possess the qualities desired of it.

This technique has been applied effectively in the Macbeth spike, designed and developed by the Executors of James Mills Limited, for fastening together flat-bottom rails and sleepers, with or without the use of soleplates. It is contended by the majority of permanent way engineers that a firm connection between rails, soleplates (where these are used), and sleepers is essential to the maintenance of correct gauge, alignment, and level; to the elimination of rail creep; and reduction of wear on track components. The principle of the Macbeth spike aims at providing a powerful means of holding the components firmly together, and at the same time offers a degree of flexibility in a vertical direction while maintaining adequate grip.

This spike is two-legged, thereby providing a perfectly stable fulcrum support to the lever arm which bears on the rail flange, and is of sufficient length to impart rigidity, combined with resilience. It is in constant spring tension when correctly driven. The hoop design possesses certain marked advantages over a single-legged fastening, particularly in resisting the tendency to distortion which must arise where longitudinal rail movement takes place in the form of creep.

Pressure on the rail flange in a vertical direction is exerted centrally to the sleeper, and ensures that the point of closest contact between rail and sleeper, or rail, soleplate, and sleeper, is in the centre of the sleeper. Any movement of rail and sleeper support under traffic is, therefore, homogeneous, and its effect is transmitted to the roadbed in a vertical direction only. Creep is prevented entirely, and track distortion avoided.

There is an important advantage in anchoring the rail to each sleeper by vertical pressure, and not by horizontal thrust. By preventing the initial generation of rail movement arising from fastenings with insufficient holding power, the subsequent necessity for a form of correction which relies on the horizontal resistance of the ballast to sleeper movement is avoided.

The normal type of dogspike or screw spike relies entirely on the grip of the fibres of the timber to resist the tendency to draw under reversals of stress. In the case of the Macbeth spike, such stresses are absorbed primarily by the steel spring represented by the hoop-shaped lever arm. These constantly-recurring stresses soon reduce the initial holding power which the plain dogspike or screw spike can exert on the rail flange, and the frictional resistance of the fibres of the timber, compressed by the spike, gradually diminishes. The rail is then free to move vertically and longitudinally on the sleepers, and after a while even the lateral stability of the spike sometimes is affected. A condition then arises where the track must rely for stability on weight of rail and load adhesion. The Macbeth spike prevents such a condition from arising.

The section of steel used in the Macbeth spike is round. It is claimed that the use of a round section in a round hole, in preference to a square or rectangular section in a round hole, is more effective and will damage the sleeper less than any other steel section. The double legs of the spike help to hold the sleeper together and to counter the splitting of timbers which sometimes occurs with age, and is often dealt with by the use of timber dogs, clamps, or devices which have the sole purpose of holding the timber together and are an added expense item. Square spikes eventually tend to split the timbers, and single-legged spikes are unable to counteract this tendency. The spacing of the double round legs of the Macbeth anchor spike also avoids piercing the heart of the timber.

From the point of view of laying and maintenance, the Macbeth spike can show many advantages over plain spikes of mild steel. Pre-assembly of track in depot is the ideal method of carrying out relaying or linking of new track. It has been found that a gang of 12 men can assemble a complete single track length of 60 ft., with sleepers, rails, bearing plates, and Macbeth spikes correctly driven, in about 30 min. Spikes are driven to a gauge in sleepers that have been pre-bored. About four blows of a suitable sledge hammer will force the spike home, both legs being driven preferably at once, using the flat of the sledge.

The character of the timber and the size of the hole naturally affect the speed of this operation to a small extent, but the general recommendation is that the hole should be $\frac{1}{16}$ in. less in diameter than the spike for medium hard wood, and $\frac{1}{8}$ in. less in diameter for soft wood sleepers. The normal diameters of Macbeth spikes are $\frac{1}{2}$ in. and $\frac{9}{16}$ in. Power hammers may be used for driving if preferred, with a suitable driving head. Experiments have been carried out to measure the adhesion of oiled spikes in all grades of timber drawn from many countries, varying from extremely hard woods to the softest quality pine. From these tests the correct size of spike hole to be bored in a particular timber can be determined.

Maintenance charges on track laid with Macbeth spikes are reduced to a minimum. The fact that the spikes do not draw under traffic, and that unnecessary movement between track components is avoided, enables this to be done. The advantage of this is very marked in countries where long lengths of track are laid directly on wooden sleepers without soleplates, and where constant re-driving of spikes normally is essential. Separate creep anchoring is eliminated, as the Macbeth spike does, in fact, prevent creep. The track can be maintained in perfect alignment with a minimum of trouble.

In first cost, the Macbeth spike is slightly more expensive than plain spikes of mild steel, as it is made of high tensile steel, and heat-treated. It has the advantage, however, of eliminating the need for separate fastenings between soleplate and sleepers, where such are required, as the hoop and twin legs will hold rail, soleplate, and sleeper together in a vice-like grip. When plain spikes are used, it often is found that soleplates tend to move unless separate fastenings are used to hold them on to the sleeper. As no rail anchors are necessary, the first cost per mile of track of the Macbeth spike is well below the total cost of fittings required by most other methods.

Withdrawal

Withdrawal is effected preferably by the use of a specially-designed lever which is inserted below the shoulders of the spike and is sufficiently powerful to draw the spike right out. Tests show that within the elastic limit of the material, the spring grip exerted by a $\frac{9}{16}$-in. dia. spike on the rail amounts to a force of at least 1 ton in soft wood sleepers, equal to 4 tons per sleeper, or more than the ballast resistance of one sleeper to the force of creep. Re-driving of the spikes can be done many times without any marked reduction of grip. An adequate protective anti-corrosive coating is provided.

Two types of Macbeth spikes are in current use. The No. 2 spike is designed

with a horizontal double U-bend joined by a loop which forms the spring bearing on the rail flange. The legs of the spike make contact with the edge of the rail flange, and provide an exact location for it. This type may be used with or without a soleplate, and can be designed to suit practically any flat-bottom rail track.

Another type, known as No. 3, is intended specifically for use with the heaviest rails using soleplates, and having locating shoulders for the rail flange. The bearing pressure on the rail is exerted by a single U-shaped bend, and the legs of the spike are well clear of the flange, generally at a distance of approximately 2½ in.

The Macbeth spikes can be applied to any existing soleplates, but by designing soleplates specially, without shoulders, it is possible to reduce weight of plates and first cost. An added advantage to manufacturers of soleplates is that round holes are preferred and cheaper to produce. Whichever type may be chosen, the track laid with it looks very neat and gives an impression of real stability, which is borne out by its behaviour under heavy and constant traffic at high speeds.

Spikes of suitable diameter and length can be designed from data in possession of the maker to accommodate any specified combination of rail section, soleplate, and timber quality. The designer claims the following advantages:—

1. They are easily fitted with no other tool than a hammer.

2. They are easily extracted by use of a simple tool.

3. Having round legs driven into round holes, they do not split the timber as do square spikes.

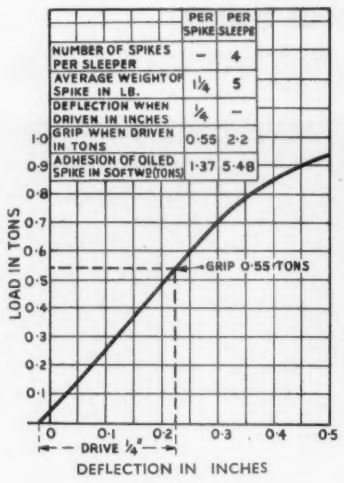
4. The spacing of the legs avoids piercing the heart of the timber, thus preventing splitting.

5. The elastic spring grip on the rail is more than sufficient to provide, without constant attention, for wear of either the wood sleepers or the baseplate.

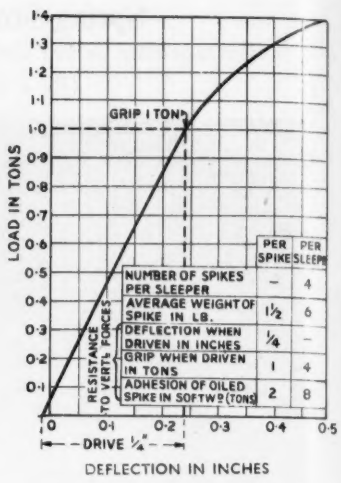
6. The grip anchoring rail to sleeper is greater than the creep resistance to be obtained from the ballast. The expense of additional creep arresters is therefore unnecessary.

7. The grip of the two legs in the timber considerably exceeds that of a single-legged spike used in similar conditions.

8. The rail can be held to gauge, and the sleeper and rail held in permanent contact under all conditions by the same spike.


PER SPIKE
PER SLEEPER
NUMBER OF SPIKES PER SLEEPER – 4
AVERAGE WEIGHT OF SPIKE IN LB. 1¼ 5
DEFLECTION WHEN DRIVEN IN INCHES ¼ –
GRIP WHEN DRIVEN IN TONS 0·55 2·2
ADHESION OF OILED SPIKE IN SOFTWD (TONS) 1·37 5·48
LOAD IN TONS
GRIP 0·55 TONS
DRIVE ¼"
DEFLECTION IN INCHES

Physical properties of No. 2 spring spike


GRIP 1 TON
LOAD IN TONS
PER SPIKE
PER SLEEPER
NUMBER OF SPIKES PER SLEEPER – 4
AVERAGE WEIGHT OF SPIKE IN LB. 1½ 6
DEFLECTION WHEN DRIVEN IN INCHES ¼ –
GRIP WHEN DRIVEN IN TONS 1 4
ADHESION OF OILED SPIKE IN SOFTWD (TONS) 2 8
RESISTANCE TO VERT. FORCES
DRIVE ¼"
DEFLECTION IN INCHES

Characteristics of the No. 3 spring spike

The Macbeth spike has undergone exhaustive trials under main-line conditions on British railways. It has proved itself completely effective, and has amply justified the claims of the designers. The accompanying photograph reproduced by permission of the Western Region shows the spikes installed in the down main line near Maidenhead. A graph of a No. 3 spike is reproduced, showing the spring grip exerted in tons related to the deflection of the driven spike measured in decimals of an inch.

Large quantities of these anchor spikes have been installed recently on Colonial

Western Region track near Maidenhead with No. 3 spikes

Using driving gauge No. 2

Driving a No. 3 spike with gauge

railways, where they have been well received. Further quantities are now in process of manufacture, and it seems certain that wherever flat-bottom rails are used, in Britain and abroad, they will be in increasing demand.

The capacity and size of the spike is roughly proportional to the rail weight, and the following have been standardised.

Rail weight up to 60 lb. material	$\frac{7}{16}$ in. dia.
" " " 60/90 lb. "	$\frac{1}{2}$ in. "
" " " 90 lb. "	$\frac{9}{16}$ in. "

Typical example —

No. 3 spike for 113-lb. rail, soft wood sleeper and double-shouldered steel soleplate, as illustrated.

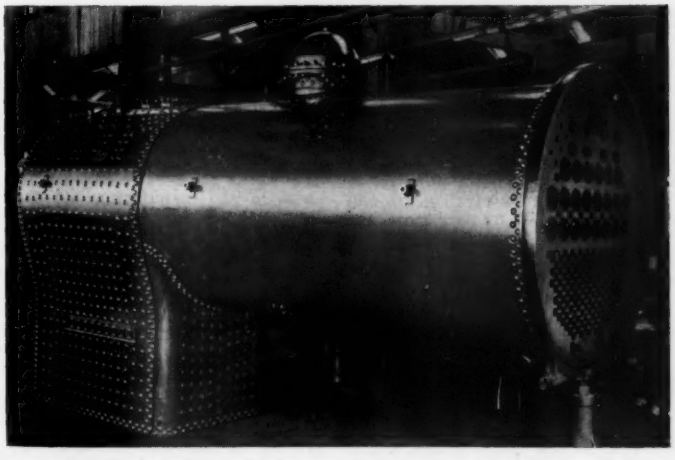
Adhesion of spike legs	2 tons minimum
Deflection	$\frac{1}{4}$ in.
Grip on rail	1 ton

After careful investigation, a spring steel has been selected for hardening and tempering which is suited ideally for the rough usage and arduous conditions experienced by rail fastenings.

Manufacture of this spring steel is in the hands of engineers who have had long experience in the production of spring steel permanent way fittings of many kinds.

New Boilers for Ex-N.B.R. Freight Locomotives

Superheated type built for the Hunslet Engine Co. Ltd. for engines originally using saturated steam



AMONG work done recently by outside builders for the group railways before nationalisation were ten boilers built for the L.N.E.R. by the Hunslet Engine Co. Ltd. These are intended for the ex-North British Railway 0-6-0 freight engines of Class "J 35," and the opportunity has been taken to put in a 22-element superheater in place of the original saturated-steam arrangement. Good steaming capacity is provided by the deep firebox, extending 5 ft. $10\frac{3}{4}$ in. below the boiler centre line.

The boilers have parallel, single-ring barrels, 5 ft. 3 in. internal dia., 10 ft. $5\frac{3}{8}$ in. long, and $\frac{7}{16}$ in. thick, attached to a round-top firebox 6 ft. 4 in. long, and with a flat grate 5 ft. $7\frac{3}{8}$ in. long by 3 ft. $4\frac{1}{8}$ in. wide. Construction follows L.N.E.R. practice, with a copper firebox of $\frac{7}{16}$-in. plates, 1-in. tubeplate, 3-in. foundation ring, and 19-in. steam and water space between inner and outer crowns. Side, transverse and roof staying are along normal lines, and longitudinal staying is by direct through stays of $1\frac{1}{8}$ in. dia. The firehole now has a narrow ring instead of being flanged and riveted plate to plate as formerly.

Within the barrel are 155 steel tubes, $1\frac{3}{4}$ in. o.d., and 22 flues, $5\frac{1}{4}$ in. o.d., 10 ft. $9\frac{1}{2}$ in. long between tubeplates. Heating surface is made up of 766 sq. ft. from the tubes, 326 sq. ft. from the flues, and 141 sq. ft. from the firebox, giving a total of 1,233 sq. ft., contrasted with the 1,672 sq. ft. from the firebox in the original N.B.R. boilers.

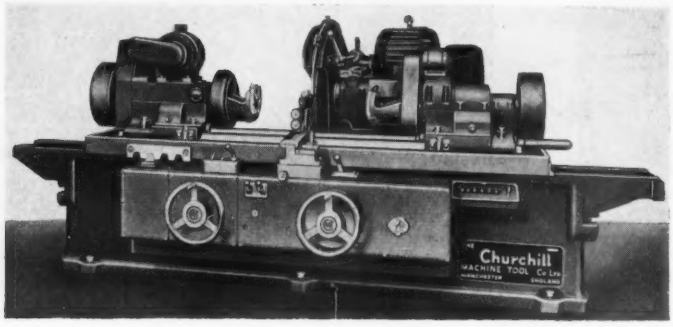
The grate area is 18·7 sq. ft., and the working pressure is limited to 180 lb. per sq. in. by $2\frac{1}{2}$-in. Ross pop safety valves. The superheater elements are $1\frac{3}{4}$ in. o.d., and provide a superheating surface of 176 sq. ft.

TOTON UP YARD BRIDGE CONTRACT.—In connection with the scheme for the mechanisation of Toton Up Yard, L.M.R., details of which were given in our January 30 issue, on page 144, a contract has been placed with the firm of Fletcher & Co. (Contractors) Ltd., Mansfield, for the construction of a bridge to carry the south departure lines.

New Precision Crankpin Grinder

A machine with mechanical, electrical, and hydraulic control for high-production grinding of crankshafts up to 36 in. long

A HIGH-PRODUCTION, precision crankpin grinder, labelled "DCY" by the manufacturer, the Churchill Machine Tool Co. Ltd., incorporates the following features: automatic electric clamping; wheel truing with work in position; control mechanism in accessible position on the front of the machine; and entirely new design of body. The machine



The "DCY" precision crankpin grinder

is stated to be built to tolerances considered fine even in the machine tool industry.

Mechanical, electrical and hydraulic control mechanism is contained in one unit on the front of the machine. This method of grouping is claimed to be unique and to enable the operator or maintenance fitter quickly to understand the various operating principles. Controls consist of electric work clamping switch; workhead speed control; spacing lever; wheelhead and steady withdrawal lever; power or hand traverse selection; diminishing feed speed control; interlock trip switch; hand traverse wheel and fine feed wheel; steady adjustment; and push-button motor controls. A sizing gauge is fitted to the steady, giving the operator immediate information on metal removal and sizing.

Other New Features

In addition to standard features of Churchill machine tools, such as hydraulic withdrawal and forward movement of wheelhead with diminishing feed, wheelhead movement interlocked with spacing control, and automatic withdrawal of steady as the wheelhead withdraws, the "DCY" grinder incorporates some interesting new equipment.

Workheads are mounted on vee and flat ways, and are driven by a 2-h.p. d.c. variable speed motor having a speed range of 6:1. Current is supplied by a compact generator set. Maximum work speed is 100 r.p.m. Drive is transmitted to the right-hand head by means of a shaft situated in a position which does not interfere with loading. Adjustable balancing devices are provided on both heads.

Electrically-operated clamps secure the crankshaft after it has been placed in position in the throw-blocks. The work cannot be rotated until the clamps have been secured, and when the heads are running the clamps cannot be unlocked.

A wheelhead with hydraulic withdrawal and return mechanism controlled by a lever is interlocked with the spacing lever so that they cannot be brought into the operative position together. The provision of an interlock trip—which automatically resets itself when both levers have been returned to their inoperative positions—enables the operator to have the wheelhead in the forward position and the spacing plunger withdrawn simultaneously if the necessity arises; for example, when truing the side of the grinding wheel. The infeed of the wheelhead can be adjusted, so that for a portion of the stroke the speed of travel is fast and for the remainder the speed is under the control of the operator. The speed of withdrawal is unaffected by this device.

A wheel truing device is attached to the wheelhead and operated at the rear of the wheel, but controlled by the operator from his normal position at the front of the machine. Truing time is claimed to be reduced to a matter of seconds.

The steady is retracted automatically when the wheelhead is withdrawn and returned to an adjustable stop position when the wheelhead is run-in to the work. The overall width of steady and sizing gauge is $\frac{7}{8}$ in., enabling very narrow pins or journals to be ground. Two adjustment screws ensure that correct support is given to the crankshaft.

Specification

A brief specification is as follows:—

Maximum swing over table	14 in.
Maximum length of shaft	36 in.
Diameter of grinding wheel	30 in.
Width of grinding wheel	To suit work
Workhead speed range	6 : 1
Maximum work speed	100 r.p.m.
Number of grinding wheel speeds	2
H.p. of wheelhead motor	15
,, table traverse motor	3
,, workhead motor	2
Floor space on full stroke	142 in. × 80 in.

Additional equipment supplied to order includes: truing diamond; radius truing device; 36-in. diameter grinding wheel; and wheel balancing stand.

WASTE PAPER DRIVE.—A recent appeal by the President of the Board of Trade has resulted in the Waste Paper Recovery Association initiating a new drive to collect a further 100,000 tons of paper by July. One of the main objects of the drive is to save expenditure on materials from North America and it is estimated that this extra tonnage would be equivalent to a saving of $10,000,000. It is emphasised that waste paper salvage is more important today owing to currency shortages than during the war.

URUGUAY RAILWAY TALKS.—Reuters reports that a Uruguay Foreign Ministry communiqué regarding negotiations for the purchase of the British-owned railways said on December 4 that "following preliminary talks with Mr. Walter Simon and members of the British Mission, the Uruguayan special committee invited representatives of the railway companies to state their views at a meeting which took place earlier in the week. Any speculation at present regarding the solution of the problem of British railways in Uruguay is without foundation, least of all regarding the possible purchase price." The Uruguay Congress normally recesses from about the middle of December until March 1, but it is now believed that the present session will continue until the urgent matters now under consideration are disposed of. Among these is the purchase of the British-owned tramways in Montevideo, already approved by the Senate, and the Anglo-Uruguay payments agreement, passed by the Senate on December 3. The payments agreement provides for 10 per cent. of Uruguay sterling balances, agreed at £17,000,000, to be released during the two years after the agreement comes into force, for £1,800,000 to be available for purchase of the Montevideo tramways, and $250,000 for the purchase of official quarters and permanent bursaries in Britain. Further sums up to £4,000,000 may be used to buy British-owned transport undertakings and up to £3,000,000 for public utilities, including transport undertakings in Uruguay, provided the purchases are made by December 31, 1948. Subject to these purchases, a further sum of £1,500,000 is later to be released, and will be released in equal yearly instalments between the date of the purchases and July, 1951.

NEW STEEL WORKS FOR GUEST, KEEN & NETTLEFOLDS.—The works and properties of the Brymbo Steel Co. Ltd., near Wrexham, Denbighshire, have been transferred to Guest, Keen & Nettlefolds Limited. The works have been engaged for many years in the manufacture of sheet bars from which sheets are rolled. They will continue to be operated under the same local management by a newly-formed company, Wrexham Steel Works Limited.

DOMINION STATUS FOR CEYLON.—The official ceremony by which Ceylon acquired its new status as a Dominion took place in Colombo on February 4, when Sir Henry Monck-Mason Moore took the oath as Governor-General. In a broadcast speech after the ceremony, the Prime Minister, Mr. D. S. Senanayake, said they were grateful for the goodwill and co-operation of Great Britain, which had culminated in the country obtaining its freedom. As reported in our November 14, 1947, issue, the Minister of Transport & Works under the new constitution is Colonel J. L. Kotalawala, who was Minister of Communications & Works for over a decade in the old State Council.

RAILWAY NEWS SECTION

PERSONAL

The viscounty conferred on Lord Hyndley, Chairman of the National Coal Board, in the New Year Honours, has been gazetted by the name, style and title of Viscount Hyndley, of Meads in the County of Sussex.

We regret to record the death on February 4, at the age of 82, of the Earl of Derby, K.G., who was President of the Travel Association of Great Britain & Northern Ireland, and sometime President of the United Kingdom Railway Officers' & Servants' Association.

CHIEF REGIONAL OFFICERS CONFERENCE

Mr. G. L. Darbyshire, Chief Regional Officer, London Midland Region, has been elected Chairman of the Chief Regional Officers Conference for 1948.

We regret to record the death on February 6, in his 71st year, of Mr. Cecil Frederic Gilbertson, a Director of Richard Thomas & Baldwins Limited.

WESTERN REGION, RAILWAY EXECUTIVE, APPOINTMENTS

Mr. R. Burgoyne as Regional Staff Officer.

Mr. S. G. Ward as Assistant Regional Staff Officer.

Mr. H. G. Bowles as Assistant to Chief Regional Officer.

Mr. G. S. Halliday as Road Motor Engineer.

Mr. W. N. Connah as Treasurer.

Mr. J. A. Ralph as Assistant Treasurer.

Mr. A. Higginson as Acting District Goods Manager, Liverpool.

EASTERN AND NORTH EASTERN REGIONS, RAILWAY EXECUTIVE, APPOINTMENTS

Mr. H. H. Halliday as Regional Staff Officer, Eastern Region.

Mr. C. Cooper as Regional Staff Officer, North Eastern Region.

Mr. J. I. Campbell as Civil Engineer, Eastern Region.

Mr. J. Taylor Thompson as Civil Engineer, North Eastern Region.

Mr. A. Moss as Signal & Telecommunications Engineer, Eastern Region.

Mr. J. H. Fraser as Signal & Telecommunications Engineer, North Eastern Region.

Mr. C. G. G. Dandridge as Commercial Superintendent, Eastern Region.

Mr. A. R. Dunbar as Operating Superintendent (Eastern Section), Eastern Region.

Mr. H. C. Johnson as Operating Superintendent (Western Section), Eastern Region.

Mr. E. Coleby as Solicitor, Eastern & North Eastern Regions.

Mr. F. H. Sedgwick as Accountant, Eastern & North Eastern Regions.

Mr. E. G. Whillis as Treasurer, Eastern & North Eastern Regions.

Mr. C. S. Wood as Assistant Treasurer, Eastern & North Eastern Regions.

Major-General G. N. Russell, C.B., C.B.E., who, as recorded in our January 30 issue, has been appointed Chairman of the Road Transport Executive under the British Transport Commission, is 48 years of age. He was educated at Rugby, and at Royal Military Academy, Woolwich, whence he was commissioned in the Royal Engineers in September, 1918. Between the two wars he served for the most part on normal Corps duties, and specialised in transportation. He served in the Indian Sappers & Miners in Iraq from 1920-24, and was an instructor at the Royal Military College at Kingston, Ontario, from 1934-36. Just before the recent war he was connected with planning the move of the B.E.F. to France, and on the outbreak of war was posted to G.H.Q., B.E.F., as Assistant Director of Transportation on the Movements staff, a post he held until the evacuation of France in June, 1940. After a short period in the United Kingdom, during which he acted as War Office Liaison Officer with the Ministry of Transport, he went to the Middle East on the Movements staff as Colonel in charge of Road & Rail Movement. At the end of 1941 he became Director of Movements, Middle East, and thus became responsible for the planning and organising of movements in the Middle East Base, in support of the 8th Army, including mounting the expedition to Sicily. For his services in that theatre he was made a C.B.E. At the end of 1943 he was posted to India and made responsible for all Military Movement and for the Military Transportation services, with the rank of Major-General. His task was to develop the various Transportation resources and to organise the necessary movement in support of the British and American Forces operating in S.E.A.C. That task involved the development of the lines of communication to Assam from a capacity of about 500 tons a day to 9,000 tons a day; and of the Port of Calcutta to carry out the import and export load to meet the requirements of the Indian Base and the 14th Army; and, finally, the mounting and despatch of the 14th Army for the re-occupation of Singapore. For his services in that theatre he was made a C.B. On completion of that task in March, 1946, General Russell went to Singapore as Transportation Officer to the Special Commissioner in South East Asia, where for rather more than a year he was closely connected with all the Transportation problems in regard to the rehabilitation of that area, including the supply of rice to the various needy areas.

Major-General G. N. Russell

Appointed Chairman of the Road Transport Executive

Mr. W. E. Butlin has been re-appointed Managing Director of Butlins Limited for a further period of 10 years.

Mr. Leslie E. Ford, Chief Docks Manager, Western Region, Railway Executive, has been re-appointed Chairman for the ensuing year of the South Wales Group of the National Association of Port Employers.

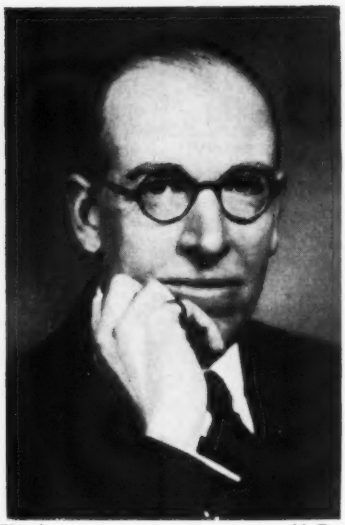
Mr. C. F. Saunders has been appointed Chief Engineer, Welding Department, Metropolitan-Vickers Electrical Co. Ltd., in succession to Mr. H. West, who will devote full time to his duties as Assistant to the Chief Electrical Engineer.

Mr. Joseph Walton (an Assistant Managing Director of Thos. W. Ward Limited) has been appointed Chairman & Managing Director of the Darlington Railway Plant & Foundry Co. Ltd., and Mr. Phillip T. Ward has been appointed a Director of the latter company.

Mr. W. T. James and Mr. J. W. Womar have resigned from the board of Sheffield United Tours Limited. Mr. R. W. Birch and Mr. E. L. Taylor have been elected Directors; Mr. Birch has been appointed Chairman, and Mr. Taylor, Managing Director.

Mr. W. T. James has been elected a Director, and appointed Chairman, of the Devon General Omnibus & Touring Co. Ltd., in place of Mr. J. S. Wills (B.E.T. Managing Director), who has resigned from the Devon board.

The late Mr. James Cadman, who was Chairman of W. G. Bagnall Limited until the recent acquisition from him of the whole of the shares of that company by Heenan & Froude Limited, left £500,679.



Elliott [*& Fry*

Mr. C. Barrington

Appointed a full-time member of the Road Transport Executive

Mr. H. E. Clay

Appointed a full-time member of the Road Transport Executive

Mr. H. T. Dutfield

Appointed a part-time member of the Road Transport Executive

Mr. Claud Barrington, M.I.Mech.E., M.Inst.T., who, as recorded in our January 30 issue, has been appointed a full-time member of the Road Transport Executive, was born at Portishead, Somerset, in 1893, and was educated at Colston's School. He joined the 12th Battalion, Gloucester Regiment (Bristol Battalion) as a 2nd Lieutenant in 1914 from the Bristol University O.T.C. After being wounded during the Somme fighting in 1916, he became Chief Road Inspector for Scotland, for the Inland Waterways & Docks Department, R.E. Mr. Barrington started in road haulage in Bristol in 1921, and later extended his activities to London and Birmingham. He was instrumental in the formation in 1936 of Transport Services Limited—recently sold to the British Transport Commission—and has been Managing Director since its inception. He is Chairman or Director of many other transport companies, a Director of I.T.D. Limited, Chairman of John Harley, Limited, Managing Director of T. S. Development Limited, and an underwriting member of Lloyds. Early in 1941 Mr. Barrington joined the Ministry of War Transport, as Chief Road Haulage Officer, and later became Director of Road Haulage. Mr. Barrington is a son of the late Mr. H. C. Barrington, who was for many years prominently connected with the Port of Bristol Authority.

Mr. Harold E. Clay, who, as recorded in our January 30 issue, has been appointed a full-time member of the Road Transport Executive, has been Assistant General Secretary of the Transport & General Workers' Union since 1940. He was born in 1886, and has been an active trade unionist from an early age, when he took up work with the Leeds City Tramways, and joined the Amalgamated Association of Tramway & Vehicle Workers, of which he was a National Executive Member and President before being appointed a full-time official in 1913. The United Vehicle Workers' Union was formed from amalgamation, and Mr. Clay acted for it in Yorkshire and on the North-East Coast. He became Area Secretary for Yorkshire on the formation in 1922 of the Transport & General Workers' Union; in 1924 he took up a national position with that union, and in 1925 was made National Secretary of the Passenger Services Group. He has been Assistant General Secretary since 1940. Mr. Clay was Joint Secretary and Leader for the Employees' Side of the National Joint Industrial Council for the Tramway Industry until that body was merged with the National Joint Industrial Council for the Road Passenger Transport Industry, when he was appointed Joint Secretary of the latter. He is also Joint Secretary and Leader for the Trade Union side of the National Council for the Omnibus Industry. Mr. Clay was a member of the Road Haulage Wages Board and of the

Mr. J. L. Harrington

Appointed Chief Officer (Administration), Railway Executive

Mr. E. K. Portman-Dixon

Appointed Acting Executive Officer (Refreshment Rooms & Dining Cars, and Hotels Liaison), Railway Executive

Mr. H. J. Hoskins

District Goods Manager, Paddington, G.W.R., 1937-47

Joint Industrial Council for the Road Haulage Industry; in addition to being a member of other industrial bodies. He represented British road transport workers at the I.L.O., Geneva, on a number of occasions subsequent to the war, and was Leader of the Workers' Group. He is President of the Workers Educational Association; and a member of the Educational Advisory Committee of the Ministry of Education, and of the Army and Air Forces Educational Advisory Committees.

Mr. Henry T. Dutfield, M.Inst.T., who, as recorded in our January 30 issue, has been appointed a part-time member of the Road Transport Executive, has been Chairman of H. & G. Dutfield Limited for the past twelve years. He entered the transport field as H. & G. Dutfield forty years ago, the business being owned by his family for over a hundred years. He became Chairman when the business was converted into a private limited company twelve years ago. When the various associations were amalgamated in January, 1945, Mr. Dutfield became first Chairman of the National Road Transport Federation and first Chairman of the Road Haulage Association. On the death of Mr. Edwardes he became Chairman of the Employers' Panel of the Wages Board; and when the Joint Industrial Council was formed in February, 1947, he became first Chairman.

Mr. J. L. Harrington, M.Inst.T., who, as recorded in our January 9 issue, has been appointed Chief Officer (Administration) to the Railway Executive, has hitherto been General Assistant to the General Manager, Southern Railway. He was educated at University College School, London. He entered the service of the Southern Railway at Balham in 1924, and was transferred to the Office of the Chief Operating Superintendent, Waterloo, in 1925. He was appointed a cadet to undergo training in the principal departments in 1928; that period included a short time with the Underground Railways of London. In 1931 Mr. Harrington was appointed Assistant to London (Central) Divisional Superintendent, London Bridge, and thereafter occupied the following positions at Waterloo: Assistant to Traffic Manager for Special Work, 1934; Deputy Assistant for Development of Traffic, 1936; General Assistant to Traffic Manager, 1937. He was a member of the Standing Joint Committee of Railway Air Services Limited, 1937-38. He was appointed Divisional Marine Manager, Dover/Folkestone services in 1938, and General Assistant to the General Manager in 1941, and led the Southern Railway delegation to study advances in railway practice in the U.S.A. and Canada in 1946. Mr. Harrington holds the Graduate Silver Medal of the Institute of Transport, the Brunel Silver Medal of the London School of Economics, and was made, in 1939, Officier du Mérite Maritime of the French Republic.

Mr. E. K. Portman-Dixon, who, as recorded in our January 9 issue, has been appointed Acting Executive Officer (Refreshment Rooms & Dining Cars, and Hotels Liaison) to the Railway Executive, has hitherto been Refreshment Room Services & Canteen Superintendent, L.N.E.R. He was born in 1906, and was educated at Brighton College. He has had experience in various catering concerns, and has served as a Director of Industrial Catering Limited, Barkers (Contractors) Limited, Practical Catering Systems Limited, and other firms. In all, he has an accumulated experience of catering control of more than 700 large establishments at various times, and has acted as Consultant Adviser to more than 100 others. Mr. Portman-Dixon has planned and designed over 300 kitchens and catering premises and much catering equipment; and he is the inventor and patentee of a large number of improved items of cooking and service utensils and apparatus. He entered the service of the L.N.E.R. as Canteen Superintendent in September, 1942, and was appointed refreshment Room Services & Canteen Superintendent in September, 1945.

Mr. H. J. Hoskins, M.B.E., who, as recorded in our January 9 issue, retired on December 31 last from the position of District Goods Manager, Paddington, Great Western Railway, entered that company's service in the Goods Department at Taunton in 1903. After serving at Birmingham (Hockley) he was appointed District Agent, Newcastle-on-Tyne, in 1922, where he remained until 1925, when he went to Paddington as representative to the Mineral Traffic Manager. Two years later he became Goods Agent at Lawrence Hill and, in 1928, Chief Clerk at Bristol (Temple Meads). He was subsequently promoted to the District Goods Managers' Office, Liverpool, as Chief Clerk, and in 1931 was appointed Assistant District Goods Manager, London. Three years later Mr. Hoskins became Goods Superintendent at Paddington (Goods Department), and from that post took over the position of District Goods Manager, London District, on January 1, 1937. For his services in the organisation of a greatly increased movement of goods traffic in the London District throughout the war period, he was made an M.B.E.

Mr. S. S. Wheeler, Commercial Advertising Officer of the London Transport Executive, has been sent to the Department of the Chief Public Relations & Publicity Officer of the British Transport Commission. During the period of his loan London Transport's Commercial Advertising Department will be under the control of Mr. K. Russell.

Sir Cyril Hurcomb, Chairman of the British Transport Commission, is visiting the North Eastern Region of the Railway Executive during February 12-14. His programme includes visits to the station, locomotive shed, marshalling yards and carriage works at York, and a meeting with the Lord Mayor and Sheriffs of York; and inspection of the widening already carried out or contemplated on the main line north of York, the production of all-steel wagons at Shildon, locomotives and wooden-wagon manufacture at Darlington, and Tees-side railway works between Darlington and Saltburn. He is also meeting the departmental officers of the North Eastern Region, and tomorrow (February 14) intends to visit the York headquarters.

LUNCHEON TO MR. SHIRLEY H. JAMES

On Monday, February 9, Mr. Shirley H. James was entertained by a large number of his friends in the travel business to a luncheon at the Cafe Royal, London, W.1, to mark his retirement. Mr. Shirley James until recently was Personal Assistant to the General Manager of Pickfords Limited, and a portrait and some biographical details were published in our December 26 issue. Mr. D. H. Drakeford presided at the luncheon and proposed the toast of the guest of honour. He was supported by Sir Alexander Maxwell, who spoke for the British Travel & Holiday Board, Mr. Gilbert Matthews on behalf of the British Railways, Mr. G. C. Rhodes for British & Foreign Steamship Lines, Mr. D. H. Handover for British & Foreign Air Lines, and Mr. James Maxwell for Travel Agents. Because of present regulations, the number of persons attending the luncheon had to be restricted to 100.

First Meeting of Road Transport Executive

The illustration shows (left to right) Mr. Harold Clay, Mr. George Cardwell, Mr. Archibald Henderson, Mr. Henry Dutfield, Major-General G. N. Russell (Chairman), Mr. Percy Tapp, and Mr. W. Beckett, at the first meeting of the Road Transport Executive, on February 3

Ministry of Transport Accident Report

South Croydon Junction, Southern Railway, October 24, 1947

Lt.-Colonel Sir Alan Mount, assisted by Brigadier C. A. Langley, inquired into the accident which occurred about 8.37 a.m. on October 24, in a dense fog, near South Croydon Junction, Southern Railway. The 8.4 a.m. electric passenger train, Tattenham Corner to London Bridge, consisting of 9 coaches with 6 motor units, which had been improperly allowed to approach and pass Purley Oaks under clear signals, collided violently with the 7.33 a.m. electric passenger train, Haywards Heath to London Bridge, composed of 8 coaches with 6 motor units, as it was passing South Croydon Junction home signal at slow speed, after having been checked by the distant at "caution."

Both trains were crowded, with passengers standing, and were estimated to be carrying 1,000 and 800 respectively. The impact was severe, and the buffers of the colliding train under-rode those of the other, the body of its leading coach, except the last two compartments, being swept away. The motorman's control gear and cab equipment were torn away and thrown on the track about 50 yd. from the point of collision; and the second, third, and fourth coaches were derailed owing to track disturbance. The rear coach of the Haywards Heath train was thrown off its bogies and turned on its side, the body breaking away from the frame, the van and rear motorman's cab being shattered. The rear of the next coach also was damaged, but it was not derailed.

Thirty passengers, and the motorman of the colliding train, were killed; one passenger was fatally injured, and 183 more suffered injuries or complained of shock, of whom 58 were taken to hospital and 41 detained there. Relief work was carried out very efficiently.

It was misty in the early morning, but by the time of the accident visibility had deteriorated to about 50 yd. Fogmen were on duty at the distant signals concerned. The accompanying diagram shows the facts essential to an understanding of the general circumstances of the accident, which was caused by a false use of the releasing key on the Sykes up main home signal lock-and-plunger instrument at Purley Oaks signal box, where the signalman, after allowing the Haywards Heath train to draw forward to his starting signal, forgot all about it. He frankly and immediately admitted his mistake, which he did not realise until he was informed of the collision, and expressed deep regret for it.

Signalling Arrangements

This section of line is still worked by the Sykes lock-and-block (former L.B.S.C.R. pattern), and the relevant instruments at Purley Oaks consist of a lock-and-plunger instrument on lever 18, front lock only; and a lock and electric semaphore instrument on lever 19, with front and back lock, the back lock being released by a train actuating the treadle in advance of 19 signal, and the front lock by an acceptance "plunge" from South Croydon Junction.

An additional front and back lock instrument controls the warning signal No. 20, and is released by South Croydon Junction accepting on an additional plunger instrument, under Block Regulation 5. This is done frequently in clear weather, but not during fog.

The "train on" rear section indication is reset when a train is passed into the station by the use of signal 18, but the plunger cannot be used again until the front lock is freed by the replacement of signal 19 or signal 20 to "danger," after the train has actuated the treadle. It was this lock on signal 18 which was released irregularly, after which an incorrect "train out of section" signal was given to Purley North box.

For the emergency release key, intended to be used only in the case of a train being cancelled, or some genuine and ascertained failure of a treadle or other part of the equipment, strict regulations were laid down saying that "signalmen are specially cautioned not to use the release key or other means of release unless they have clearly ascertained that no train is in the section and that such release is absolutely necessary and can with safety be given." They further provided for the possibility of dismissal following "any improper use of the release key."

After a previous collision caused by misuse of the key, the following additional strong warning was issued under date of July 4, 1946, over the signature of Mr. S. W. Smart, Superintendent of Operation:—

"*Special Warning to Signalmen and Porter Signalmen as to Use of Sykes' Keys or Other Means of Release.*—The special attention of signalmen, and other members of the signalling grade, is drawn to a case of irregular use of the Sykes' release key whereby two passenger trains were admitted to a block section and a collision occurred resulting in loss of life and serious injuries to passengers.

"The opportunity is taken of reminding signalmen of the relevant instructions in Regulation 7 of the Lock & Block System of Train Signalling Regulations which read as follows:—

"*Signalmen are specially cautioned not to use the release key or other means of release unless they have clearly ascertained that no train is in the section and that such release is absolutely necessary and can with safety be given.*

"Whenever a signalman is offered a train and finds that his Sykes' plunger is locked he must first assure himself, beyond all measure of doubt, by consultation with the signalman at the box in the rear (even if this means delay to traffic) whether his inability to use the plunger in the normal manner is due:—

(i) to a train having been accepted or being already in the section; or
(ii) to a shunt movement having been made from a siding to the main line within the area under his control; or
(iii) to some failure of the apparatus.

"At the same time he must have a clear understanding with the signalman at the box in the rear as to the description and whereabouts of the last train signalled to him, before he uses the release key or other means of release to free the plunger.

"When in such circumstances the use of the Sykes' key or other means of release for accepting a train becomes necessary the signalman concerned must maintain his distant signal at caution for the next approaching train.

"Should a signalman find that a signal (other than the signal controlling the entrance to the section ahead) is 'locked' when it should be 'free,' he must, before effecting release, satisfy himself that no train is in the section between the signal concerned and the next stop signal ahead.

"A note of the circumstances must be made in the train register book or other book provided for the purpose at each box.

"When the use of the release key or other means of release becomes necessary in con-

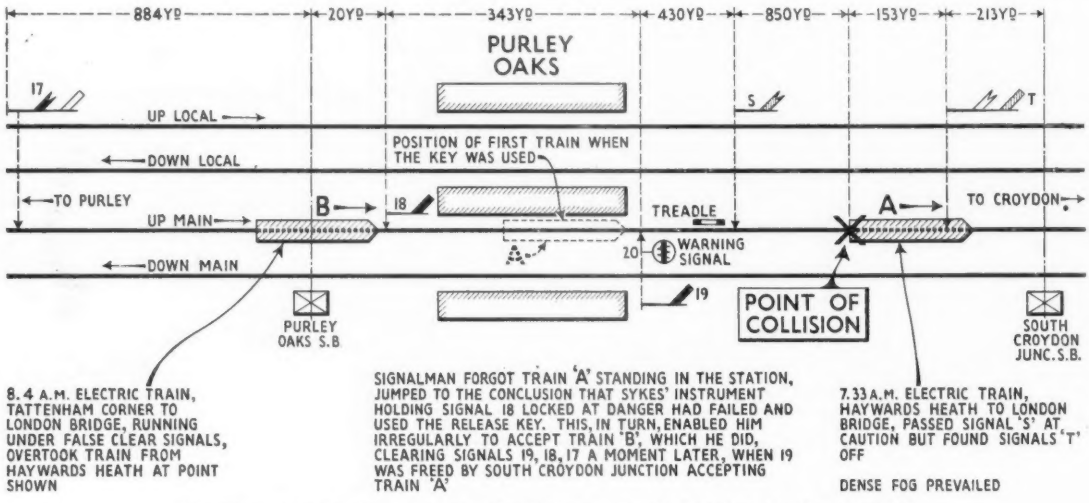

884YD
20YD
343YD
430YD
850YD
153YD
213YD
PURLEY OAKS
17
UP LOCAL
DOWN LOCAL
POSITION OF FIRST TRAIN WHEN THE KEY WAS USED
S
T
TO PURLEY
UP MAIN
B
18
TREADLE
A
TO CROYDON
DOWN MAIN
20
WARNING SIGNAL
19
POINT OF COLLISION
PURLEY OAKS S.B
SOUTH CROYDON JUNC.S.B.
8.4 A.M. ELECTRIC TRAIN, TATTENHAM CORNER TO LONDON BRIDGE, RUNNING UNDER FALSE CLEAR SIGNALS, OVERTOOK TRAIN FROM HAYWARDS HEATH AT POINT SHOWN
SIGNALMAN FORGOT TRAIN 'A' STANDING IN THE STATION, JUMPED TO THE CONCLUSION THAT SYKES' INSTRUMENT HOLDING SIGNAL 18 LOCKED AT DANGER HAD FAILED AND USED THE RELEASE KEY. THIS, IN TURN, ENABLED HIM IRREGULARLY TO ACCEPT TRAIN 'B', WHICH HE DID, CLEARING SIGNALS 19, 18, 17 A MOMENT LATER, WHEN 19 WAS FREED BY SOUTH CROYDON JUNCTION ACCEPTING TRAIN 'A'
7.33 A.M. ELECTRIC TRAIN, HAYWARDS HEATH TO LONDON BRIDGE, PASSED SIGNAL 'S' AT CAUTION BUT FOUND SIGNALS 'T' OFF
DENSE FOG PREVAILED

Diagram showing circumstances of collision at South Croydon, October 24, 1947

nection with the 'cancelling' signal (*vide* Regulation 18 of the Standard Regulations for Train Signalling) the signalman at the advance box must, after acknowledging the 'cancelling' signal and before using the key or other means of release, confirm with the signalman at the rear box the particular train that will not proceed and for which the 'cancelling' signal has been sent. This procedure must be followed not only at those boxes where Sykes' instruments are provided but also at boxes where standard three-position closed block apparatus is installed and push button releases are provided in connection with the 'cancelling' arrangement."

Trains are described on Walker's type transmitters from Coulsdon North to Purley North and South Croydon Junction, but not to Purley Oaks. Passenger trains on the up main from Coulsdon and beyond are offered by a 3-1 bell signal; and the Tattenham and Caterham trains, which join the main line at Purley North and cannot be described on the Walker transmitters, by a 3-3-1. Owing to the intensive working and interlacing of the Tattenham Corner trains into the flow of traffic, an incorrect description of trains sometimes occurs and the special 5-3 bell signal is used to call attention to this prior to transmitting the correct signal. In foggy weather, when the "warning arrangement" may not be used, main-line trains may be delayed several minutes at Purley Oaks when up Oxted line trains are accepted at South Croydon Junction.

The Course of Events

The motorman of the Haywards Heath train explained how he was stopped at signal 19 and remained there for 7 or 8 min., when it was cleared and he proceeded. He was exempted from carrying out Rule 55 at this signal, but he whistled on passing the box. South Croydon Junction distant he found against him, but on sighting the home signal at probably 60 to 100 yd. found it and the distant below "off" and opened the controller. He estimated that he had increased speed to 12 to 20 m.p.h. when the collision occurred, but the speed may have been less than he thought.

His guard confirmed this evidence, but thought visibility at Purley Oaks had been about 60 yd., whereas the motorman thought it was about 170 yd., or a train's length. The guard, who was in the rear van compartment, which was shattered, escaped with only minor injuries.

The acting guard of the Tattenham train thought the brakes must have been applied before the collision.

The fogman at South Croydon Junction distant stated that the Haywards Heath train exploded a detonator there. About 1½ to 2 min. later the signal was pulled "off," and in about half a minute the colliding train passed him at about 40 m.p.h.

The signalman at Purley North gave "entering section" for the first train at 8.27 a.m. and expected to get "out of section" about two minutes later. In the meantime the Tattenham train had arrived at Purley Station and, a train being described from Coulsdon South, he had to decide which one to send away first. The Haywards Heath train, however, could not at first be accepted by South Croydon Junction, owing to conflicting movements there, and remained held at Purley Oaks signal 19, where its tail was invisible to the signalman on account of the fog.

Not receiving "out of section," the Purley North signalman called up his colleague at Purley Oaks and asked "how he was looking on the up main," to which he got a mere exclamation of surprise, which he could make nothing of. A few seconds later "out of section" was received, and he decided to offer the Tattenham train with the 3-3-1 code. It was at once accepted and left at 8.34 a.m.

He explained that he knew his colleague to be a porter-signalman, recently returned from the Army, and wanted to avoid making him feel "uncomfortable by saying anything about delaying the 'out of section' signal, as this would have been inclined to put the man off his balance." He had "never worked with a better porter-signalman," but he suggested that he should have graduated through a lower class box, "because it did seem in a way unfair to put a porter-signalman with a few weeks' experience out on the main line."

The porter-signalman at Purley Oaks had come on duty at 6 a.m. to work to 3 p.m. No register book is kept there, and he could not recollect the train from Littlehampton which preceded the one from Haywards Heath. He remembered accepting the latter and sending it up to wait at signal 19, where he could not see it. He forgot it completely, and when the message came from Purley "I just turned round (from the telephone) and looked at the instruments and thought I had stopped something and immediately freed the instrument . . . . at this time No. 19 starting signal was section locked." He then accepted with the 3-3-1 code the Tattenham train.

Shortly after, at about 8.35 a.m., South Croydon Junction accepted the Haywards Heath train with the 3-1 code and released signal 19, but the man at Purley Oaks failed to appreciate that the acceptance related to that train and cleared all his signals in readiness for the Tattenham train. Neither did the release of the back lock on 19 by the Haywards Heath train working the treadle, which he observed, recall the position to him. He thought at first that platelayers must have struck the treadle, but realising they would not be at work in a fog, thought the instrument had dropped to "free" irregularly; and instead of putting lever 19 back, as would ordinarily be the course to follow—and, as it happened, was in urgent need of being done—he raised the locking rod by hand. Seeing the headcode of the Tattenham train he telephoned to South Croydon Junction, to which, in fact, he had never signalled it at all, that a branch train was coming, receiving the reply "all right."

The South Croydon signalman could not accept the Haywards Heath train until 8.35 a.m., but did not consider the delay unusual in fog conditions. He cleared his home signal, but had to wait a short interval for the control from the station in order to clear the distant, which the train passed at "caution." He received "entering section" and a moment later learned that a Tattenham train was approaching, but did not comment on that, as it was not unusual for the order of running to be altered. Hearing the noise of the collision, he blocked all lines and inquired of Purley Oaks if the Tattenham train had run by the signals there. He received the reply "No, it was all my fault."

The porter-signalman who made this grievous blunder had been in the service 11 years and was 29 years of age. He spent 5 years in the Army, three as a prisoner after the capture of Tobruk. After rejoining the railway in May, 1946, he was a leading shunter, then acting ticket collector, and applied in March, 1947, to be made porter-signalman at Purley Oaks. He was accepted, and after four weeks' training was passed by an inspector on May 12. After another week as second man, he took over full charge for four weeks while the regular signalman went on holiday. He then took duty partly as porter, partly as signalman, and five weeks before the accident resumed full-time duty as signalman in place of one who was ill.

He had thus had nine weeks' previous experience of heavy traffic, including morning and evening peaks, and 14 weeks' normal duty, involving two hours a day in the slack period. He had also performed Sunday duty on nine occasions, but had not had any experience of working a box in fog.

In effect his explanation for falsely assuming failure of the instrument was that he had overlooked the obscured train, having regard to heavy pressure of traffic, a total of 38 trains in one hour, with corresponding plunging, ringing, and lever operating. He said that in the normal way he was "at home in that box," but on this occasion could see no further than the other side of the tracks, looking directly out. He usually made use of the

View of the wreckage at South Croydon Junction

switch-hook, but did not know whether he "actually did this time."

He thought it possible that he may have been at the up end of the frame when offering the Haywards Heath train forward and was afraid he "must have overlooked it," meaning the switch-hook. (The turning of the "switch-hook," a distinctive feature of the Sykes apparatus, raises the electric semaphore at the box in the rear, when not already in that position, and prevents the accepting plunger from being depressed. He had not been worried previously and had nothing on his mind.

The inspector considered him "perfectly suitable" and a man above the average. He was quite confident of his competence to take charge. Failures and how to deal with them were discussed, and a particular point made of the care to be exercised in using the release key. The inspector said "treat it as a red hot poker and handle it it as such." He did not agree that the appointment was a mistake, and was quite prepared to accept the man to "work any turn in the box at any time," and pointed out that "it is left to the man to decide when he is ready to take over." No man is examined until he expresses willingness.

Previous failures of equipment, the inspector said, should not have influenced the man, nor would a train register necessarily have acted as a reminder. He did not feel that fog or telephone messages should have put the signalman "off his balance," but that he was prompted by the message from Purley that he was delaying traffic which "caused him to take the action he did on the spur of the moment."

On three occasions during the week of the accident apparatus had failed while the man concerned in this case was on duty. The down main treadle failed intermittently on October 20, necessitating use of the key, and was set finer, but on October 23 it failed on the wrong side from being set too fine and incorrectly released a back lock, probably from vibration caused by traffic on adjoining tracks. On the morning of the accident the down local line treadle failed to free the back lock. The signalman acted correctly and did not clear the block until "train out of section" was received.

He stated that failure forms existed, but were not used for treadle failures, these being entered in a book. He had used one form since being in the box for failure of home to starting rotation locking, but could not remember the circumstances or date. (This was the kind of failure that he assumed wrongly to have taken place).

Most failures, in his experience, were on the safety side, and the inspector thought a failure to release a back lock occurred while he was examining the man in the box on May 12, but from what he heard generally from the 200 signalmen under him he was of opinion that the incidence of these failures was not worse than pre-war and the three mentioned were coincidence.

The Signal Engineer, Mr. L. J. Boucher, also thought they were exceptional in such a short period, and said that the whole equipment had been overhauled between April 15 and May 18, 1947. It appeared, however, that he was not being invariably informed of such incidents, though his own inspector reported that, since the overhaul, the lineman's attention had been called to two failures of apparatus on the local lines but to none on the main lines.

Inspecting Officer's Conclusion

Judging by the severity of the collision, the speed of the Tattenham train must have been 40 to 45 m.p.h. when it overtook the other, moving at 15 to 20 m.p.h. It is difficult to account for what transpired, but responsibility must rest on the signalman at Purley Oaks for his most irregular use of the release key, thus destroying the protection afforded to the train standing at signal 19. This followed the telephone inquiry as to the position on the up main, upon which he jumped to the erroneous conclusion that the instrument had failed, a very serious error, particularly in fog.

His confusion of mind must have deluded him into thinking that he alone was right and his instrument wrong. Thus his series of blunders was set in motion, the first being his transmission of "out of section" for the Haywards Heath train, and then the release of the block to Purley North. Nor were subsequent warnings of any avail in the absence of visual reminder of the train. Although he could not see or hear the Haywards Heath train start when he cleared his signals, as he thought, for the Tattenham train, the release by it of the back lock on the starting signal did not warn him that something was wrong.

He assumed, again falsely, that this second instrument also had failed and reset it to "locked" without returning the signal to "danger." He did not appreciate the significance of the 3-1 bell signal when South Croydon Junction plunged to free signal 19, but assumed that this applied to the Tattenham train, which he had accepted from Purley a few moments before on the 3-3-1 signal and had not offered forward. Even when he saw the headcode and informed South Croydon Junction that the Tattenham train was approaching, he was not reminded of the position. Only when spoken to after the collision did he realise his mistake.

Sir Alan Mount thinks that the man's breakdown in instrument manipulation "must have been due to some failing to appreciate the danger of irresponsible use of the key in the face of most stringent instructions," and observes that he knows "of no other Instruction which gives warning that improper use of apparatus may incur dismissal." The company at once took the view that this man should be employed on other work. Presumably he failed to obey the relevant instructions and turn the switch-hook when he acknowledged "entering section" for the Haywards Heath train. When he used the key the block indicator electric semaphore for the section in advance was at "danger," as the switch-hook had been turned at South Croydon Junction to hold the road.

The recent failures of treadles, particularly the wrong-side failure of one of them on the previous day, may have influenced him. It was also the first time he had worked in a fog during his brief 5 months' experience as a signalman. There were men of long service each side of him, and the telephone inquiry from Purley obviously surprised him and appears to have led him to think he was delaying traffic. In the circumstances, all that could have been expected of him was to do nothing until he had consulted those boxes, but there is, of course, the natural desire of a signalman to rely on his own initiative. Presumably, however, he would have been told to ring up the man on duty on the platform and ask if a train was standing awaiting the clearing of signal 19.

The circumstances led Sir Alan to think that both the man and the inspector who tested and passed him overestimated his ability to work alone in a main-line box under the stress of heavy traffic in adverse conditions, such as fog. The inspector admittedly had had many years' signalling experience, and signalmen even of long service have misused the key, but it seemed to Sir Alan that this man was allowed too rapidly to assume duties with too much responsibility, and he was assured that the extent of training and methods of examination would be reviewed, as also the placing of men of short experience in main-line boxes.

A fourth treadle failure during the week of the accident occurred while Sir Alan himself was inspecting the box on October 27, and he considers that the question of insistence on reporting such incidents by signalmen to the Traffic Department, as well as direct to the lineman, requires further emphasis. By this means all in authority should be kept aware of the extent of such failures and of the efficiency of maintenance. It should be added, however, that statistics showed no deterioration on this section of line in the general standard of reliability, in spite of difficulties of obtaining staff and material.

Remarks

Lock-and-block signalling is designed to afford complete protection, but it is necessary to provide some means of interrupting the normal sequence. The problem resolves itself into limiting the use of the key for essential purposes and preventing the signalman resorting to it at the wrong time.

The company accordingly has issued the strictest possible warnings against misuse, and safety of operation naturally depends on the maintenance of a high standard of discipline. The accident would not have occurred had colour-light signalling and track-circuiting been in use, and it was proposed to commence to equip the line between Battersea Park and Coulsdon in 1940, but the war postponed the work.

Approval has been given recently for it to proceed, and plans are well in hand. The present signalling has been in use for over 50 years and it is probably true to say that no other mechanical system could have coped so efficiently with such heavy main-line and suburban electric services. It is essential, however, that more modern equipment should be provided to deal with increased traffic, afford even greater safeguards against human error, and ease the manpower position.

Recommendations

(*a*) Although the signalman acted without due sense of responsibility, his failure seems to have resulted from insufficient experience of the Sykes signalling system. In addition to reviewing its methods of training and examination, the company should consider the propriety of placing men with short experience in charge of main-line boxes.

(*b*) Stringent as the instructions already are about using the release key, further consideration also appears desirable with the object of ensuring that the signalman in the boxes on either side should be asked to advise and co-operate in any case of doubt. Alternatively, where applicable, the signalman concerned should be obliged to consult the platform staff before a home signal, and/or plunger lock, is freed.

(*c*) Greater emphasis appears to be necessary as regards signalmen reporting *all* failures of equipment to the Traffic Department, apart from the lineman being advised. This should facilitate the *full* recording of every failure, and ensure that all in authority may gauge the efficiency of maintenance.

Questions in Parliament

Season Tickets

Mr. T. C. Skeffington-Lodge (Bedford—Lab.) on February 2 asked the Minister of Transport whether in view of the large number of season ticket holders who did not travel more than five or six days a week, he would arrange for a revision of the cost of long-period tickets which would take that fact into account.

Mr. Alfred Barnes (Minister of Transport): I assume that Mr. Skeffington-Lodge's question relates to season tickets on the railways of the British Transport Commission. The matter is one for the Commission, to which I am sending a copy of the question.

Lt.-Commander Gurney Braithwaite (Holderness—C.): Is this not a matter of national importance on which a question can properly be asked of the Minister?

Mr. Barnes: Commander Gurney Braithwaite, who was a member of the committee which considered the measure, knows very well that it is not the intention, now that the organisation is set up, for the Minister to interfere with its day-to-day operations.

Commander Braithwaite: On the contrary, does not the Minister recall that during the committee stage he gave an undertaking that he was going to be forthcoming on these matters, and that on that understanding he obtained the clause?

Mr. Barnes: I also recall that Members opposite were very doubtful about the Minister's capacity to do all these things.

Mr. Skeffington-Lodge: Will the Minister at least make representations to the Transport Commission on the lines I suggest, and use his influence to help?

Mr. Barnes: No, I do not think that I can exercise my position as Minister to influence the day-to-day management decisions of the Commission. The powers of the Minister are clearly defined in the Statute.

Sir Waldron Smithers (Orpington—C.): On a point of Order. Is it not possible for you, Mr. Speaker, to protect members of the House when they are asking for information about nationalised industries—for instance, the B.B.C., and transport, gas, and electricity undertakings? It will be a dreadful business if we cannot ask questions about the administration of the nationalised railways.

The Speaker: That is not a matter which lies within my province in the slightest.

Cheap Railway Fares

Mr. G. Wadsworth (Buckrose—Lib.) on February 2 asked the Minister of Transport (1) if he would standardise the system of giving concessions for workmen's tickets on the British Railways, to avoid the situation where in densely populated areas workmen could mostly enjoy that privilege, whereas in less densely populated areas that privilege often was refused: and (2) if he would raise the age at which children could enjoy the benefit of half fare on the British Railways to the school leaving age, which was now 15.

Mr. A. C. Bossom (Maidstone—C.) asked the Minister of Transport what was the reason that he could not make a workable arrangement, now that the Government had control of the railways, that would enable clerical workers to have the same privileges of cheap travel that were available for artisans, mechanics, and labourers.

Major E. A. Bramall (Bexley—Lab.) asked the Minister of Transport whether, in view of the fact that children of 14 could no longer be wage-earners, he would advise the British Transport Commission to raise the age for half-fares on its trains and road vehicles from 14 to 15.

Mr. Alfred Barnes: I will answer together these questions, all of which concern the arrangements for workmen's tickets or cheap fares on the services of the British Transport Commission. Such arrangements are matters for the Commission, and I am bringing the questions to its attention.

Mr. Bossom: Is it not ridiculous to segregate one section of the community and give them a privilege, while cutting off another, who do equally good work for the country, and refuse to give them the same rights?

Mr. Barnes: That may be the case, but, as I have indicated, this is a matter which will now have to be considered by the Commission when it is re-framing the whole of its charges, rates, and schemes for submission to the Transport Tribunal.

Major J. A. Boyd-Carpenter (Kingston-on-Thames—C.): Are not the matters raised in the first two questions of major public interest, and does the Minister's answer mean that the House is to be denied any opportunity of obtaining answers from the responsible Minister?

Mr. Barnes: I do not think it is legitimate to draw that conclusion. Members are aware that under the Control Agreement the fact that the nation paid the whole of the rent of the railways meant that every conceivable question could be asked. With the passing of the Transport Act the position has been altered. In any case, by January 1 this year the whole situation would have been altered whether the railways were under their original ownership, or under the Transport Commission.

Mr. Leslie Hale (Oldham—Lab.): Will the Minister say whether all these anomalies and difficulties have arisen since January 1, or whether they existed before that date?

Mr. Barnes: They existed before, but members of the House were entitled to put questions of detail then because the State paid the rent of the railways. Since January 1, however, the date of decontrol, it has not been legitimate to put such questions to the Minister.

Mr. Wadsworth: Will the Minister promise that this matter will be considered by the Commission at an early date?

Mr. Barnes: Mr. Wadsworth can use his imagination, but it would not be based very much on fact.

Captain John Crowder (Finchley—C.): On a point of Order. Can you tell us, Mr. Speaker, whether instructions have been given to the clerks at the table not to accept questions on the day-to-day working of the railways and the Coal Board, or whether it is to be left to the Minister to say whether he will not answer such questions?

The Speaker: During the war, the custom was that the Minister indicated to the table that certain questions would not be answered. Those questions, therefore, were not put down. The Ministry of Information, for instance, did not answer questions on administration during the war.

Sir Waldron Smithers (Orpington—C.): Are we now to understand that the Minister is a dictator, and the decider of the rights of the House of Commons?

Mr. T. E. N. Driberg (Maldon—Lab.): Is it not the case that before Christmas the Leader of the House made a statement on this whole question, and indicated that it might be considered further, possibly in a debate, or in a statement by you?

The Speaker: This is a matter on which I have no authority whatsoever, but I gather that in the near future we may have a debate on it, in which case members will be able to express their views.

Colonel L. Ropner (Barkston Ash—C.): I always understood that the clerks at the table acted on your instructions. The position at the moment is that the Minister is able to instruct the clerks as to what questions he is, or is not, prepared to answer. We wish to submit to you, Sir, that questions should be allowed and that it should be for the Minister to refuse to answer with the full knowledge of the House that the question has been asked.

The Speaker: The Minister says to the clerks at the table, "I have no responsibility for this; this is a matter of administration by the Board, and I therefore disclaim responsibility." That being so, a question cannot be put down about it.

Lt.-Commander Gurney Braithwaite (Holderness—C.): Could you not help the House in this way? A question having been permitted, and put down, and the Minister having given a reply, are we entitled to give notice to raise the matter on the Adjournment if we are not satisfied with the reply?

The Speaker: Certainly.

Major J. A. Boyd-Carpenter: Might there be made available to the House the information which you have just given, and also the subjects on which the Minister is prepared to answer? The House could then know what questions the Minister purports to answer.

Mr. Barnes: On a point of explanation: If there is any allegation that I have attempted to give instructions to the clerks, I deny that. The fact that there are questions on the order paper today that I propose to refer to the Transport Commission makes that position quite clear.

Colonel Ropner: Then I give notice that I shall raise this matter on the adjournment at the earliest opportunity.

Central London Line Services

Mrs. Leah Manning (Epping—Lab.) on February 2 asked the Minister of Transport when it was proposed to increase the number of trains on the Central Line to cope with the alarming increase of travellers due to extension of the line.

Mr. Alfred Barnes: This is a matter for the British Transport Commission, and I am bringing Mrs. Manning's question to its attention.

Mrs. Manning: Is it proposed to shrug off every question that is difficult? Has the Minister ever been on one of the Central Line stations during the peak hour? If so—and this has nothing to do with the Transport Commission—does he not consider that the conditions in which people have to travel to and from work are absolutely disgraceful, and a danger to life, limb, and the nervous systems of those who journey on this line?

Mr. Barnes: My reply was not given to avoid a difficulty. I am not in possession of the information which Mrs. Manning needs, but I am satisfied that she will get from the Commission a full explanation of the difficulties and causes of this problem.

Mrs. Manning: I beg to give notice that I will raise the question of the Central Line extensions on the adjournment at the first opportunity.

"ROYAL SCOT" TO RESUME NAME.—Next Monday the 10 a.m. express from Euston to Glasgow and *vice-versa* will resume the name "Royal Scot." This will mark the 100th anniversary on February 15 of the completion of through railway communication between London, Glasgow, and Edinburgh by the West Coast Route.

Notes and News

General Production Manager Required.—A general production manager is required by a railway rolling stock manufacturing firm in South Yorkshire. See Official Notices on page 203.

Loudspeakers at Fenchurch Street.—Loudspeakers have now been installed at Fenchurch Street Station, bringing the number of former L.N.E.R. stations equipped with public address systems to 25.

"Simplon-Orient" Istanbul Service Suspended.—Reuters reported from Istanbul on February 5 that the Istanbul through coach of the "Simplon Orient Express" had been suspended again, because the Greek Government no longer guaranteed safe crossing of the strip of eastern Thrace owing to guerrilla activity. During the previous suspension, road transport was provided between Svilengrad and the Turkish frontier, as reported in our December 5, 1947 issue.

L.M.R. Musical Society.—On Thursday, Friday, and Saturday of last week the London Midland Region Amateur Musical Society presented the operette, "Viktoria and Her Hussar," at the Scala Theatre, London, W.C. The principal roles were played by Mr. Arthur Lloyd, and Mr. Percy Fleet. Miss Lucy Sander, Mr. Jack Pegg, Miss Marjorie Ellisdon, Mr. Fred Bishop, and Miss Ursula Davis. The performance was enthusiastically received by a large audience.

W. H. Smith & Son Luncheon to London Stationmasters and Parcels Agents.—The luncheon given annually by W. H. Smith & Son Ltd. to London terminal stationmasters and parcels agents was held on January 27 at the Grosvenor Hotel, Victoria Station. Also present were London terminal bookstall managers, W.H.S. district superintendents, and heads of some W.H.S. head office departments; Mr. C. H. W. Troughton, a Director of the company, presided. The occasion represented the first of a series of functions in 1948 celebrating the centenary year of W. H. Smith & Son as bookstall contractors. Mr. Troughton proposed the toast of "Our Guests," and Mr. H. S. Turrell, Stationmaster, Euston, London Midland Region, replied; Mr. F. W. Goring, Station-Master, Kings Cross, Eastern Region, also spoke. Other stationmasters and parcels agents who accepted invitations to be present were:—

Eastern Region: Messrs. G. M. Booth, Stationmaster, and W. J Bradnum, Parcels Agent, Liverpool Street; W. W. Capon, Stationmaster, Marylebone; F. M. Geeson, Parcels Agent, Kings Cross; F. Smith, Stationmaster, Fenchurch Street. London Midland Region: Messrs. C. P. Chatham, Parcels Agent, Euston; V. L. Ward, Stationmaster, St. Pancras. Southern Region: Messrs. F. Bassett, Stationmaster, London Bridge; A. T. Chapman, Stationmaster, Victoria; E. Mathews, Stationmaster, and C. Cunnington, Parcels Agent, Waterloo; W. G. K. Doorne, Stationmaster, Charing Cross; J. Mumford, Stationmaster, Holborn Viaduct; H. A. Turpin, Stationmaster, Cannon Street. Western Region: Messrs. W. T. Geden, Stationmaster, and B. A. Wright, Parcels Agent, Paddington.

Draughtsman (Civil Engineering) Required.—A draughtsman (civil engineering) is required by the Nigerian Government Railway for 18 to 24 months with prospect of permanency. Candidates must have had at least five years experience in the drawing office of a civil engineering railway department, or consulting engineers or contractors with practice in railway work. See Official Notices on page 203.

"Bradshaw's Guide" for February.—The February edition of *Bradshaw's British Railways Official Guide* has adopted the new regional titles for the British main-line railways at the head of the timetable pages, but has retained the old titles of the main-line companies in the contents, index pages, etc. It has also retained the old titles of the miscellaneous railways and joint committees. Thus, the contents still directs readers to the Great Central & North Western Joint, which is shown in the actual entry as M.S.J. & A.

C.P.R. Equipment Orders for 1948.—Orders for new equipment for the Canadian Pacific Railway were announced in Montreal recently by Mr. W. M. Neal, C.B.E., Chairman & President of the company, who said that the directors had authorised an expenditure of over $31,000,000 for 1948. This new equipment will include 44 diesel locomotives, 2,100 wagons, and 115 passenger cars. Thirteen of the new diesels, said Mr. Neal, would go to the Esquimalt & Nanaimo Railway, on Vancouver Island, which was being completely dieselised. The whole order would bring to 99 the number 1,000-h.p. diesel units the company had in service. Rolling stock covered by the new orders includes 75 coaches, 5 double bedroom-roomette sleeping cars, 15 baggage-express cars, 10 mail-express cars, 1,000 box wagons, 100 covered hopper wagons, 350 triple hopper wagons, 350 high-capacity open wagons, 200 ballast wagons, 100 steel brake vans, and 5 passenger, 5 freight, and 34 shunting diesel locomotives.

Wagon Supply in the U.S.A.—A committee appointed by the U.S. Senate has urged the construction of goods wagons at the rate of 10,000 a month for at least two years to relieve the present national shortage of these vehicles. In its report, the committee stated that it was necessary to increase the stock of goods vehicles in the U.S.A. by 200,000 units, and it was stated, also, that the building of wagons for export had had no detrimental effect, at least up to the end of 1946.

Heavy Demand for Holiday Road Travel.—When the offices of the Midland Red Omnibus Co. Ltd., in Birmingham, were opened on February 2 to accept bookings for journeys to holiday resorts, a queue of well over 1,000 people was waiting. Demands for seats on the last two Saturdays in July were unusually heavy. Bookings were taken to resorts in the South such as Paignton, Torquay, Bournemouth, and Margate; while the northern resorts favoured included those in North Wales and Blackpool.

Swedish Rail Cars for Portugal.—The first vehicle of an order for 24 railcars placed with the Swedish company, Nydquist & Holm, by the Portuguese Railways, is ready to enter traffic after satisfactory trial runs. These vehicles are driven by two 8-cylinder 140-h.p. diesel engines with hydraulic transmission on the Swedish Lysholm-Smith system. They weigh 20 tons each, seat 40 passengers, and are capable of towing a 20-ton trailer. Some are for the 5 ft. 6 in. and some for the metre-gauge sections of the system. Orders have been placed also with Nydquist & Holm for 11 54-seat trailers of both gauges to operate with the foregoing cars.

Repairs to Leicestershire Viaduct.—A contract has been placed with the Sheffield firm of Wellerman Bros. Ltd. for the strengthening of one of the arches of a 13-span brick viaduct supporting the Market Harborough-Melton Mowbray line of the London Midland Region at East Norton. The viaduct, which is at present in need of repair due to the effects of end thrust, will be strengthened by the sinking of 30 reinforced concrete pressure piles in front of two of the existing piers. Also, the defective arch will be strengthened by means of a new brick arch supported on two heavy piers to be constructed immediately beneath. The work will be completed within twelve months.

Nyasaland Railways Limited.—The report for the year ended December 31, 1946, shows gross receipts of £271,634, as against £246,615 in the previous year. An increase from £152,039 to £183,692 in working expenses gave a net revenue for the year of £87,942, comparing with £94,576 in 1945. The operating ratio rose from 61·65 per cent. to 67·62 per cent. Goods tonnage increased from 113,206 tons to 117,642 tons, but there was a decline from 320,704 to 267,801 in the number of passengers carried, on account of the withdrawal of the Sentinel railcar service between Blantyre and Port Herald.

W. H. Smith & Son Centenary Year

Mr. H. S. Turrell, Stationmaster, Euston (left). Mr. F. M. Geeson, Parcels Agent, Kings Cross, Mr. C. H. W. Troughton, Director, W. H. Smith & Son Ltd., and Mr. F. W. Goring, Stationmaster, Kings Cross, at the recent luncheon given by W. H. Smith & Son (see paragraph above)

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

GENERAL PRODUCTION MANAGER required by a progressive and old-established firm in South Yorkshire manufacturing all types of high class Railway Rolling Stock, etc. The person appointed will be responsible for all the manufacturing shops and production control, estimating, rate fixing and process planning. He must have executive experience and a first class knowledge of modern steel rolling stock construction in all its branches. Appointment is superannuable. Reply in confidence stating age and particulars of experience, etc., to Box No. 6, c/o *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

PNEUMATIC HOSE, 1-in. bore, 5-ply rubber lined, with bursting pressure of 600 lbs. p.s.i., in 40-ft. lengths. Complete with gunmetal connections. New and unused.—COX & DANKS LIMITED, Plant Department, Oldbury, Birmingham 'Phone: Broadwell 2011.

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:—

DRAUGHTSMAN (Civil Engineering) required by Nigerian Government Railway for 18 to 24 months with prospect of permanency. Commencing salary according to experience, in scale £600 to £970, including expatriation pay. Outfit allowance £60. Free passages. Candidates must have had at least five years' experience in drawing office of a Civil Engineering Railway Department (or Consulting Engineers or Contractors with practice in railway work). Knowledge of design and construction details of civil engineering structures and railway trackwork is required, including ability to take off quantities, prepare estimates and draft general specifications. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/17417/3D on both letter and envelope.

FIFTY YEARS OF RAILWAY LIFE IN ENGLAND AND SCOTLAND. By Joseph Tatlow. Cloth. 8½ in. by 7 in. 223 pp. Illustrated. 10*s*. *By post* 10*s*. 7*d*.

OIL FILTERS, by AutoKlean Strainers. 1½-in. Flanged inlet and outlet. Cast-iron body approx. 18 in. long, fitted internally with washer-type hand-operated filter unit. Approx. weight 37 lbs. These filters are new and unused.—COX & DANKS LIMITED, Plant Department, Oldbury, Birmingham. 'Phone: Broadwell 2011.

A NATIONAL TRANSPORT PROGRAMME. With foreword by Sir James Milne. Outlines the approach of a long-term plan for transport, covering State and private ownership; track costs, etc. Paper, 8½ in. by 5½ in. 27 pp. 1*s*. *By post* 1*s*. 2*d*.

THE CORONATION SCOT. New 4-6-2 locomotive and 9-coach trains built specially for working the L.M.S.R. accelerated 6½-hour express service. Paper. 12 in. by 9 in. 16 pp. Folding plate. Illustrations and diagrams. 3*s*. *By post* 3*s*. 2*d*.

THE EVOLUTION OF RAILWAYS. Second edition, revised and enlarged. By Charles E. Lee. Traces the germ of railways back to Babylonian times. Cloth. 8½ in. by 5½ in. 72 pp. Illustrated. 6*s*. *By post* 6*s*. 4*d*.

A statement by the Chairman, Mr. W. M. Codrington, which accompanies the report, records that the company has on order from the North British Locomotive Co. Ltd. five 2-8-2 locomotives with a tractive effort of 29,800 lb., and also six 7,000-gal. tank wagons from Hurst, Nelson & Co. Ltd.

Railway Strike in Queensland.—Reuters reported from Brisbane on February 6 that a strike of 3,000 railway maintenance workers had caused the cancellation of almost the whole of the Queensland Railways services. As no staff was available, even for minor repairs, the Government declared that it was impossible to carry on normal running, although essential coal trains continued to be operated.

C.P.R. Final Dividend.—A final dividend for 1947 of 3 per cent., announced by the directors of the Canadian Pacific Railway, maintains the total distribution on the common shares for the year at 5 per cent., the same as in 1946. It is pointed out that maintenance of the dividend is made possible only by income from sources other than railway operations, the continued increase in gross revenue from freight traffic being offset, largely, by the decrease in passenger traffic and by increases in wages and costs of materials and supplies.

Livery for Railway Steamships.—A standard livery is announced by the Railway Executive for its fleet of more than 100 steamships. In future, the funnels of its vessels will be painted buff with a black band on the top, while the hulls will be black with white superstructure. This new livery will replace the well-known red with black of the former G.W.R. ships on the Channel Islands and Irish services and the striped tops of the L.N.E.R. vessels on the Clyde. There will be little alteration to the former L.M.S.R., Southern, and L.N.E.R. cross-Channel vessels, which already have light-coloured funnels with black top.

New Diesel Railcars for G.N.R.(I.).—To provide hourly express services between Belfast and Dublin, the Great Northern Railway (Ireland) has decided to purchase 20 diesel railcars, costing about £300,000. The purpose is to augment the existing services operated by steam locomotives, and it is expected that the new cars will be in operation next year. The possibility of using a gas-turbine jet locomotive has also been considered and inquiries as to costs are being made. The diesel railcars will each carry 44 passengers and travel at a speed of 64 m.p.h. The cars may be used as independent units or grouped with ordinary passenger coaches.

Strike at Manchester London Road.—On February 8, 750 employees in the goods department at London Road Station, Manchester, went on strike, after six men had been served with summonses for alleged thefts of firewood. At a meeting on February 8, the men decided to resume work immediately, after union officials had promised that the dispute would be discussed by headquarters. This was the first strike on British Railways.

Railway Debating Societies.—A letter has been sent by the Honorary Publicity Officer of the Southern Region Lecture & Debating Society (Mr. R. A. Savill) to the corresponding societies of the former G.W.R. and L.N.E.R. (North Eastern Area) proposing a change in their titles to British Railways (Western Region) Lecture & Debating Society, and British Railways (North Eastern Region) Lecture & Debating Society. The Southern society proposes altering its own present provisional title to conform with the foregoing. The letter also put forward for consideration the possibility of an even closer and more official understanding between the three societies, even to the extent of discussing a proposal for their actual affiliation into a British Railways Lecture & Debating Society, with three branches.

Summer Sailing Tickets for Channel Islands.—Sailing tickets (in addition to travel tickets) will be required for journeys to the Channel Islands from Southampton and Weymouth on Fridays and Saturdays from May 14 to September 25 inclusive; and from the Channel Islands to Weymouth and Southampton on Fridays and Saturdays from May 21 to October 2 inclusive. No time limitation will be imposed for the issue of sailing tickets during 1948, and they can be obtained on and from March 1. Postal applications for outward journeys *via* Southampton should be addressed to the Continental Inquiry Office, Railway Executive (Southern Region), Victoria Station, London, S.W.1; or to the Divisional Marine Manager, Southampton Docks. For journeys *via* Weymouth application should be made to the Quay Superintendent, Weymouth. For inwards journeys *via* Southampton or Weymouth, application should be made to the Agent of the Railway Executive at Jersey or Guernsey. The Central Inquiry Bureau (Western Region), 14, Bishops Bridge Road, London, W.2, will deal only with applications in person, for Weymouth sailing tickets, from intending passengers living in the London area.

English Electric Co. Ltd.—A final ordinary dividend of 6 per cent. brings the distribution for the period from January 1 to December 27, 1947, to 10 per cent., which is the same as has been paid for the 10 preceding years. It is shown in a preliminary statement that the company's profit for 1947 was £491,362, after meeting all losses attributable to the fuel crisis, providing for taxation, and charging £245,135 for depreciation.

Maintenance Work in Polhill Tunnel, Southern Region.—From midnight on February 21 Polhill Tunnel, between Dunton Green and Knockholt stations, will be closed to traffic for three weeks except for certain up business trains between 7.45 and 10 a.m. During the three weeks the track and ballast on both lines will be renewed, and the central portion of the tunnel, which has suffered from the penetration of water, will be ballasted to a greater depth. New drainage will be provided. All the new track will be relaid on the pre-assembled system, and special mechanical equipment will be used for reballasting the central portion. Main-line trains will be diverted *via* Swanley. A bus service will operate between Knockholt and Dunton Green.

Road and Rail Co-ordination.—Part at least of the machinery for joint working established between the Road Haulage Association and the four main-line railway companies before the Transport Act came into force, will be continued by the British Transport Commission. The Commission has indicated its desire to participate in the Road-Rail Licensing Scheme. Under this scheme, which has now been in operation for nearly two years, applicants for "A" and "B" carriers' licences have an opportunity of reaching an agreement, whereby hauliers and the Commission will not object when the applications are heard in the Traffic Courts. The scheme was one of the products of the good relations established between road and rail after the setting up of the Road & Rail Central Conference early in 1939.

Goswick, L.N.E.R., Derailment Inquiry.—Lt.-Colonel G. R. S. Wilson concluded on February 5 his inquiry into the derailment of an Edinburgh-Kings Cross express at Goswick, Northumberland, on October 26, 1947 (see our October 31 issue). He found that the accident was caused largely by the failure of the driver to see a distant signal, which was held at "caution" on account of track repairs.

The driver said, in his evidence, that the distant signal was obscured by smoke and steam when he looked for it, and that the home signal was "off." Lt.-Colonel Wilson said he was not altogether convinced that the home signal was not at "danger" when the driver first saw it. A naval leading stoker had been travelling on the footplate without authority.

Forthcoming Meetings

February 16 (*Mon.*).—The Institute of Transport at the Institution of Electrical Engineers, Savoy Place, W.C.2, at 5.30 p.m. Brancker Memorial Lecture, "Airport Buildings," by Mr. J. W. S. Brancker, M.Inst.T.

February 17 (*Tues.*).—The Institute of Transport, Metropolitan Graduate and Student Society, at the Institution of Electrical Engineers, Savoy Place, W.C.2, at 6 p.m. "Ship Management," by Mr. A M. Lutterloch, Graduate.

February 19 (*Thurs.*).—British Railways (Southern Region) Lecture & Debating Society, Chapter House, St. Thomas's Street, London Bridge, S.E.1, at 5.45 p.m. "Portsmouth Harbour Station—War Damage and Reconstruction," a series of short papers by the Chief Civil Engineer's Department.

February 19 (*Thurs.*).—Société des Ingénieurs Civils de France, at the Institution of Civil Engineers, Great George Street, London, S.W.1, at 5.30 p.m. "The Reconstruction of Railway Bridges in France," by M. L. Carpentier, Ingénieur à la Division Centrale des Ouvrages d'Art de la S.N.C.F.

Railway Stock Market

A combination of adverse factors has had widespread repercussions on stock markets, industrial shares suffering one of their biggest falls in recent years, and contrasting strongly with a further rally in British Funds and a general marking up of Argentine rails after the trade pact. Before markets had time to recover from the devaluation of the French franc and uncertainty as to its effects on our export drive, Sir Stafford Cripps' warning speeches emphasised the dangerous dollar shortage and the effect of inflation both on the economic position at home and on exports.

The Anglo-Argentine trade pact was a signal for general marking up of Argentine railway stocks in expectation that Argentina will shortly ratify the railway agreement. At the time of writing no date has been announced as to when the £150,000,000 pay-out money will be received. The market is assuming that the bulk of this is likely under existing conditions to be reinvested in gilt-edged stocks. This partly explains this week's further rally in British Funds. Moreover, the announcement of April 1 as the vesting date for electric supply companies has reinforced the view that the Treasury is assuming that by then the rally in British Funds may have progressed sufficiently to make British Transport 3 per cents command par; otherwise British Electricity stock would have to be issued at a discount or made shorter-dated than Transport stock. At one time on Monday, gains in Argentine railway stocks ranged up to 8 points, but later prices were inclined to ease pending news as to when stockholders will receive their pay-out money. The 4 per cent. debentures of the leading companies at 95 have gained 6 points at the time of writing, which compares with their pay-out levels of 100.

The Argentine developments revived "take-over" talk in respect of Central Uruguay and other Uruguayan railway companies. Central Uruguay ordinary strengthened to 22 and the second debentures to 63½. Moreover, take-over talk in respect of Brazilian rails was reflected by renewed speculation in Leopoldina.

San Paulo attracted renewed attention up to 160 in the hope that at long last there will be an official statement from Brazil as to when the purchase money for the railway can be expected. Canadian Pacifics after receding with dollar stocks, became firmer at 18½ on the maintenance of the dividend at 5 per cent, although the directors point out that this is made possible only by income from non-railway sources.

Road transport and bus shares lost ground because of the set-back in markets, but declines on balance were relatively small. In cases where negotiations for take-over of assets are likely with the British Transport Commission, the market is still assuming that current share prices will prove to be undervaluations.

Iron and steel shares reacted sharply after their recent gains, United Steel being 27s. 3d., Colvilles 29s. 9d., and Dorman Long 29s. 3d. The market had been hoping for a somewhat less conservative dividend policy; but it is now being suggested that this is unlikely if the Budget restricts dividends and profits, and that this may in effect react adversely on compensation terms in the event of iron and steel nationalisation. Among locomotive builders and engineers, Beyer Peacock have changed hands around 25s. 6d., North British Locomotive were 26s. 9d., and Vulcan Foundry 31s. 6d.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: inc. or dec. compared with 1945/46	No. of Week	Aggregate traffics to date: Totals 1947/8	Aggregate traffics to date: Totals 1946/7	Aggregate traffics to date: Increase or decrease	Shares or Stock.	Prices: Highest 1947	Prices: Lowest 1947	Prices: Feb. 10 1948
				£	£		£	£	£				
South & Central America	Antofagasta	834	1 2.48	57,440	+ 20,050	5	248,280	179,470	+ 68,810	Ord. Stk.	17	9½	11
	Arg. N.E.	753	31.1.48	ps.381,200	+ps 61,800	31	ps.10,747,200	ps.9,783,600	+ ps.963,600	,,	21	10	11½
	Bolivar	174	Jan., 1948	$98,547	− $16,522	5	$98,547	$115,069	− $16,522	6 p.c. Deb.	25	16½	27½
	Brazil	—	—	—	—	—	—	—	—	Bonds	44½	26	42½
	B.A. Pacific	2,771	31.1.48	ps.3,200,000	+ps.550,000	31	ps.81,541,000	ps 69,392,000	+ ps.12,149,000	Ord. Stk.	11¼	6	11½
	B.A.G.S.	5,080	31.1.48	ps.4,939,000	+ ps.3,000	31	ps.112,667,000	ps.108,484,000	+ ps.4,183,000	Ord. Stk.	19	12	18½
	B.A. Western	1,924	31.1.48	ps.1,566,000	+ ps 29,000	31	ps.44,382,000	ps.39,450,000	+ ps 4,932 000	,,	28½	14½	23½
	Cent. Argentine	3,700	31.1.48	ps.4,334,400	+ps.641,775	31	ps.106,640,851	ps.98,838,282	+ ps.7,802,569	,,	21	9	19½
	Do.	—	—	—	—	—	—	—	—	Dfd.	21	5	12½
	Cent. Uruguay	970	31.1.48	44,523	+ 7,824	31	1,036,138	1,132,888	− 96,750	Ord. Stk.	30½	9½	23½
	Costa Rica	262	Dec., 1947	35,372	+ 8,090	26	197,719	160.025	+ 37.694	Stk.	13	8½	8
	Dorada	70	Dec., 1947	25.600	− 6,400	52	350.800	369.575	− 18.775	1 Mt. Deb.	108	100½	106½
	Entre Rios	808	31.1.48	ps.491,200	+ps.51,500	31	ps.13,931,900	ps.13,317,700	+ ps.614,200	Ord. Stk.	11	6½	11½
	G.W. of Brazil	1,030	31.1.48	42.900	− 200	5	185.700	186 600	− 900	Ord. Stk.	102/6	19/−	3½
	Inter. Ctl. Amer.	794	Dec., 1947	$1,123.000	+ $204,529	52	$13,076.437	$10,462.386	+ $2,614.051	—	—	—	—
	La Guaira	22¾	Jan., 1948	$78.078	− $47.198	5	$78 078	$ 125.276	− $47,198	5 p.c. Deb.	88½	65	84½
	Leopoldina	1,918	31.1.48	63,799	− 3 405	5	262.801	288.814	− 26.013	Ord. Stk.	22½	3¼	14½
	Mexican	483	31.5.47	ps.1,464.000	+ps.459,100	22	ps.7,706.200	ps.13,441 600	+ ps.5,220,000	Ord. Stk.	8	¾	1
	Midland Uruguay	319	Dec., 1947	19.608	+ 4,088	26	105.663	112.280	− 6,617	—	—	—	—
	Nitrate	382	31.1.48	9,417	− 374	4	23.103	17.562	+ 5 541	Ord. Sh.	86/3	62/6	67/6
	N.W. of Uruguay	113	Dec., 1947	3 686	− 2,085	26	29 982	34 050	− 4.068	—	—	—	—
	Paraguay Cent.	274	30 1.48	$57 158	− $5.207	31	$1,979 613	$1,955,925	+ $23.688	Pr.Li.Stk.	60½	44½	47½
	Peru Corp.	1,059	Jan., 1948	163 867	+ 15.607	31	1,189,986	1,068.462	+ 121.524	Pref.	13	7	7½
	Salvador	100	30.11.47	c156,000	+ c66,000	22	c471,600	c412,000	+ c59,600	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	189½	129½	157½
	Taltal	156	Dec., 1947	8.390	+ 4,710	26	40.740	29.410	+ 11.330	Ord. Sh.	24/−	17/−	18/9
	United of Havana	1,301	31 1.48	98.332	+ 27.587	31	1,880.176	1,560.182	+ 319.994	Ord. Stk.	4½	1½	1½
	Uruguay Northern	73	Dec., 1947	1,098	− 227	26	6.622	8.031	− 1,409	—	—	—	—
Canada	Canadian National	23,535	Nov., 1947	9.373.250	+ 91.250	48	99.924.750	91,193,750	+ 8,731.000	—	—	—	—
	Canadian Pacific	17,037	Dec., 1947	7.151,250	+ 914,250	52	79,646,500	73,124,000	+ 6,522.500	Ord. Stk.	18⅜	16	18½
Various	Barsi Light†	202	Dec., 1947	20 962	+ 52	39	226.312	205.680	+ 20.632	Ord. Stk.	114½	100½	103½
	Beira	204	Nov., 1947	109.872	+ 19,033	9	225.888	181.330	+ 44.558	—	—	—	—
	Egyptian Delta	607	31.12.47	22.922	+ 449	39	446.809	509.056	− 62.247	Prf. Sh.	6¼	6	6
	Manila	—	—	—	—	—	—	—	—	B. Deb.	83½	69	81½
	Mid. of W. Australia	277	Nov., 1947	19.736	+ 8,823	22	108.059	80 568	+ 27.491	Inc. Deb.	75	65	74½
	Nigeria	1,900	Nov., 1947	506.530	+ 44.927	35	2.930.730	3.076.711	− 145.981	—	—	—	—
	Rhodesia	2,445	Sept., 1947	643.980	+ 102.833	52	6.787 603	6.174.664	+ 612.939	—	—	—	—
	South African	13,323	10.1.48	1,190.342	+ 976.730	41	51,257,522	46,834,356	+ 4.423,166	—	—	—	—
	Victoria	4,774	Aug., 1947	1,177.321	− 11,568	9	—	—	—	—	—	—	—

Receipts are calculated @ 1s. 6d. to the rupee